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Band 179

International Fund Managers' Viewpoints, Perception and Investment Behavior: Empirical Evidence

Von

Torben Lütje

Duncker & Humblot · Berlin

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To my parents

Preface

Financial assets grow faster in modern economies than real assets leading to an increase in the financial sectors' relative importance. A driving force explaining this change is the increasing division of labor in the financial realm, representing a reasonable specialization. An outcome and at the same time an engine in this process are asset managers, i.e. specialists in managing financial assets. Among asset managers, fund managers form a group of particular relevance. They manage funds mainly as mutual funds for the general public or as special funds for more particular purposes, such as pension funds. These fund managers are the issue of interest in Torben Lütje's dissertation.

His final research question asks about the degree of efficiency which fund managers show in their decision making. The author uses a questionnaire that has been especially developed for this purpose and that has been sent to numerous fund managers in Germany, Switzerland, and the United States. The design of such a questionnaire requires the conducting of a series of interviews with experts in order to identify useful formulation of questions and statements. It has to be ensured that the questionnaire will be regarded as professional and well-balanced with respect to the fund managers' interests. In the end, academics cannot provide many incentives to this well-paid and time-restricted target group and thus have to rely on their voluntary cooperation. Fortunately, the author was able to win the attention of several high ranking professionals. In particular, the German investment and asset management association BVI helped this research project by contributing a support letter. Altogether, Torben Lütje generated 453 questionnaires, providing a unique and promising database. Response rates as well as structural relations demonstrate that this is indeed a reliable and largely representative source which will help to significantly improve our understanding of fund managers' behavior.

Economists are often skeptical about the usefulness of survey data as they prefer to analyze what people do rather than what they say. However, we can often observe behavior but are ignorant about motivation or the circumstances of decision-making. In this respect, other sciences more "naturally" rely on survey evidence as a complementary source of information. I would thus like to provide examples from this dissertation as to why survey evidence can be useful:

Chapter 3 analyzes the herding behavior of fund managers. It is one of the core problems of more traditional research to distinguish between herding due

to common information or due to following others (without having the same set of information). A survey can circumvent this identification problem by directly asking fund managers about their views. It is, indeed, found that herding in the sense of rationally following others without sharing their information is a widespread behavior. This behavior – or more precisely: those fund managers showing this behavior – can then be analyzed in more detail to learn about possible motivation and consequences of herding.

Chapter 5 addresses bonus payments in this industry and asks whether they shape behavior and if so, whether this may be rather good or bad for market efficiency. A core problem being related to research on explicit incentives is data shortage. An anonymous survey can overcome this bottleneck and thus allows us to learn about the determinants of bonus payments and also about their possible impact.

Chapter 6, finally, examines the home bias puzzle from a new angle. Earlier research investigates the international allocation of portfolios which may be influenced by factors such as transactions costs, legal restrictions, and preferences of customers or investment advisors: in short, there is an identification problem. This can be solved in a survey by asking fund managers about their preferred asset allocation without being restricted by any of these factors.

The findings of this research provide new insights about fund managers: regarding the herding phenomenon it can be shown that those fund managers who tend towards this behavior reveal characteristics that will negatively affect their performance. Herding has a "bad" attribute from this point of view. High bonus payments, by contrast, are a "good thing" as they seem to create a kind of behavior that supports market efficiency, although too high bonus size may require careful limitation of risk taking allowed. The evidence on home bias is mixed: the good news is that fund managers show much less home bias than ordinary investors, which clearly demonstrates their professionalism. The downside is that those fund managers who prefer home assets are most probably not motivated by any rational consideration. On the contrary, home bias of fund managers is an indication of professional inferiority.

Thus, the study does not only generate lessons of academic interest but also provides material that can help fund managers to improve their behavior and thus in the last instance their performance. I would therefore wish this research the attention it deserves in both quarters: academic as well as fund management business.

Hannover, December 2004 Prof. Dr. *Lukas Menkhoff*

Acknowledgments

This dissertation has been written during my stay at the University of Hannover as research and teaching assistant at the Chair for Money and International Finance from October 2002 to October 2004. I would like to emphasize that I am deeply grateful to my supervisor Prof. Dr. Lukas Menkhoff. He encouraged my research intentions very much and gave me professional as well as personal advice at any time.

I also would like to thank Prof. Thomas P. Gehrig, Ph.D. (University of Freiburg and CEPR London) for the second review of my dissertation and all his helpful comments. Moreover, I appreciate Prof. Dr. Michael Melvin's (Arizona State University) support very much, who gave me the opportunity to prepare the joint survey of the US-American fund management industry at his university.

In addition, I would like to thank all the fund management professionals who participated in the survey and who were available as interview partners, respectively. Without their contribution it would have never been possible to generate such a large data sample, which has been proven as representative for the fund management industries in the United States, Germany, and Switzerland.

Furthermore, I would like to thank all my colleagues at the University of Hannover, Chair for Money and International Finance. They provided a familiar working atmosphere and contributed with productive discussions to the success of my research project.

The financial support of the survey in Germany by the "Wissenschaftsförderung der Sparkassen-Finanzgruppe e.V." as well as the financing of the surveys conducted abroad by the "VolkswagenStiftung" are gratefully acknowledged.

Last but not least, I am indebted to my parents who always supported my doctorate, allowed great latitude and kept me grounded. This dissertation is dedicated to them.

Hannover, December 2004 *Torben Lütje*

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1. Introduction

1.1 Motivation and contribution of this dissertation

International asset managers have become major players in global capital markets and possess not only strong influence on asset pricing, but also on economic development. The importance of professional asset managers will consistently increase as they gain further market share in financial markets, and the latter grow faster than commercial markets. The value of worldwide assets under management in (mutual) investment funds has reached €11.05 trillion by the end of 2003 (see FEFSI, 2003). Due to comparative advantages to private investors, particularly regarding portfolio size and availability of information, asset managers are an engine of financial globalization. The structural change in financial markets is only assessable if these professional market players and their investment behavior are analyzed in detail, too.

Especially in respect of their informational advantage and professional experience, it is thought-provoking to realize that asset managers often fail to "beat the market", as found in numerous different studies (e.g. Lakonishok et al., 1992, Malkiel, 1995, and Carhart, 1997). This empirical result is surprising, since asset managers are expected to be skilled and experienced market participants, and they have access to the relevant information about listed companies and financial markets. Thus, it is important to learn more about these decision makers – their personal viewpoints, perception and investment behavior.

The approach of behavioral finance provides several explanations for biased behavioral patterns of participants in financial markets that are possibly responsible for observed underperformance of professionals. A lot of research has been done on transaction data, but investors' transactions are only the final result of a stepwise investment process, being influenced by several factors. Hence, it is essential to examine this process as well. Apart from theoretical models (like e.g. De Long et al., 1990), experimental research and surveys can provide empirical evidence on investment behavior. Unfortunately, there are only few studies that directly focus on professional decision makers in asset management. For instance, Chevalier and Ellison (1999, 1999a) consider investment performance in connection with fund managers' age and education. With regard to fund managers' heterogeneity, the consideration of personal characteristics should not be limited to these two items. More detailed informa-

tion about fund managers' points of view and perceptions would help to better understand their investment decisions and the related consequences. So, what are main drivers in decision making? Which behavioral biases typically exist?

This study aims to shed light on these questions. A survey is the adequate method to perform respective analyses.[1] Such an approach can provide complementary evidence to more conventional empirical research methods. The comparative advantage of a survey is its broad scope and identification of groups amongst market players as well as motivational clusters. Thus, it enables analyses of driving forces for specific investment behavior. So, we conducted questionnaire surveys with fund managers in the United States, Germany and Switzerland in 2003/04. The choice of target countries also reflects the importance of these three investment management markets and its big players worldwide: The United States and Europe clearly dominate the global market with a market share of 53.1% and 33.5%, respectively (see FEFSI, 2003). In Europe we focused on Germany and Switzerland, as they are the home markets of important global players in fund management.

Based on hypotheses from the literature, the questionnaire was designed to provide personal information about *(i)* respondents' characteristics such as gender, age, education, professional experience and position, about *(ii)* respondents' views on the fund management industry, as well as about *(iii)* their personal risk taking and investment behavior. In order to provide incentives to participate in the survey we developed a rather short questionnaire and offered to provide the research results when completed.

The quality and significance of the answers given does not only critically depend on a suitable selection of questions, but also on their correct formulation. Thus, we discussed draft versions of the questionnaire with professional fund managers in numerous personal interview meetings in each country in order to avoid misinterpretations. In detail, we interviewed a lot of fund managers in New York, Boston and San Francisco in the United States; in Frankfurt, Hamburg and Hanover in Germany; as well as in Zurich in Switzerland. The interviews could contribute to specify the hypotheses from the literature and to assess their applicability for a written survey. The latter could finally be confirmed in conducted pretests.

During the period of April to August 2003 the fund management companies in Germany and Switzerland were repeatedly contacted. The German investment and asset management association 'BVI' supported our research with a letter of recommendation to all its member firms. Thereafter, from September

[1] Prominent work includes Shiller (1989), Shafir, Diamond and Tversky (1997), Blinder (2000) as well as Howitt's (2002) survey on labor market research.

2003 to February 2004, we collected questionnaires from fund managers in the United States.[2] In total, our survey provides a comparatively large data set of 453 responses from professional fund managers[3] – comprising 148 questionnaires from the United States, 263 from Germany and 42 responses from Switzerland.

We were able to persuade fund managers to act as multipliers by forwarding the questionnaire to their colleagues and ask for participation. Hence, we cannot report a response rate concerning the number of sent out questionnaires. We rather would like to emphasize the high participation rate of 37.8% of investment companies.[4] In detail, we sent our questionnaires to the top 250 US firms ranked by worldwide assets under management and we received response from fund managers of 74 different firms (participation rate of US firms: 29.6%). In Germany we sent questionnaires to 66 member firms of the 'BVI' with major investment segments in equities and bonds, respectively, and fund managers of 51 different companies participated in the survey (participation rate of German firms: 77.3%). The high participation rate of German companies is also attributable to the letter of recommendation by the 'BVI'. In Switzerland 18 of 62 active member firms of the 'Swiss Funds Association' with major investment segments in equities and bonds, respectively participated (participation rate of Swiss firms: 29.0%). Strategic answers are not expected due to guaranteed anonymity of participants. The sample is representative for the investment industries in these markets and provides a lot of interesting findings.

1.2 Outline

The remainder of this dissertation proceeds as follows: Section 2 starts with a review of the questionnaire survey conducted with 263 fund managers in Germany. This section is structured according to the major items of the investment process – influence of incentives, use of information and decision making. It is found that professional market players perceive distinctive herding

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[2] We would like to thank Michael Melvin from the Arizona State University for his kind cooperation regarding data collection in the United States.

[3] For example, Baker (1998) conducted an interview study with 64 fund managers in the United Kingdom, the survey of institutional investors by Shiller and Pound (1989) is based on a sample of 71 responses. Recent questionnaire survey studies of the German fund management, by Brozynski et al. (2004) and Arnswald (2001) comprise 117 and 275 (via the authority of the Deutsche Bundesbank), respectively.

[4] This is a good result compared to the response rates in e.g. Shiller and Pound (1989) and Bodnar et al. (1996) of 45% and 18%, respectively.

amongst fund managers and substantial psychological influences on pricing. In contrast, they predominantly use fundamental information, but also pay attention to discussions with their colleagues and technical analysis. Compared to other market players, their investment behavior is possibly less biased by the disposition effect. We identify improvement opportunities regarding the following topics: *(i)* Herd behavior, also reflecting reluctance, *(ii)* extensive consideration of non-fundamental information, *(iii)* application of different investment strategies whose conditions of success are not always complied and *(iv)* a home bias that is barely ascribable to advantages of information.

Taking a closer look at the first mentioned topic of improvement opportunities Section 3 distinguishes between herding asset managers who try to be good and non-herding asset managers who try to be better than their competitors. Based on the questionnaire survey in Germany it provides evidence for reputational herding and discusses herding managers' working effort, preferred sources of information and investment horizon. Additionally, their risk taking behavior including their investment behavior in short-term tournament scenarios is analyzed. It is found that herding managers assess themselves as generally more risk averse than non-herding managers, but in the tournament they are willing to take more risk. This finding is ascribable to their fear of falling out of the herd.

Prevalent herd behavior of an influential group of market players can also cause price movements in the same direction for some time, i.e. a price momentum occurs. Section 4 discusses diverse explanatory approaches regarding observed stock price momentum. Even if the outstanding Fama and French three-factor model has no explanatory power for this phenomenon, there exist some new approaches that are able to explain stock price momentum: Especially behavioral approaches as well as (extended) risk factor models, that are in line with traditional theory, provide plausible explanations for it. Asset managers often embark on momentum strategies to benefit from this price pattern, as the profitability of these strategies corresponds with their period of performance evaluation.

Based on the whole sample of the questionnaire survey with fund managers in the United States and Continental Europe, more precisely in Germany and Switzerland, Section 5 analyzes the influence of incentives on investment behavior. It is found in trans-atlantic comparison that explicit incentives are much more important in the United States. Bonus payments stimulate working effort, but, there is no significant evidence that performance-based salary decisively affects risk taking behavior. Nevertheless, US fund managers are generally far more willing to exploit their maximal allowable discretion with respect to tracking errors, while Continental European fund managers stay well inside the allowable band. Furthermore, bonus payments tend to reduce the willingness to opportunistic behavior.

Finally, the German survey of fund managers reveals a home bias for these sophisticated investors in an unrestricted setting in Section 6. Proximity, perceived informational advantage and higher expected returns are confirmed as accompanying factors. In addition, the home bias of equity managers is also related to institutional, informational and behavioral characteristics. The perceived informational advantage does not seem to be valid. Multivariate analyses indicate that home bias is mainly related to relative return optimism, nonfundamental information and peculiar behavior towards risk. We interpret these as characteristics of less than fully rational behavior. It is consistently found that this pattern does not apply to bond managers, but significantly to equity managers.

All in all, the questionnaire survey does not only confirm prior empirical findings, but it also provides a lot of new evidence on the investment behavior of fund managers in financial markets. The survey confirms that people are not machines: The investment behavior of professional fund managers is not exclusively determined by rational reactions to fundamental information, but it also reflects fund manager's viewpoints and perception. The survey unveils that many fund managers query the efficiency of investment markets as they perceive distorted investment behavior of other institutional investors. In addition, their own investment behavior is also subject to behavioral biases to some extent. Professional education and experience help to diminish these influences, but they are not able to prevent them completely.

Associated with the perspectives and perceptions of fund managers, the findings complement one another to a clearer and more comprehensive picture of these influential decision makers. Accordingly, it improves the understanding of the financial world. The results of this study are of theoretical interest as well as of practical importance. The transfer of insights from theory to practice offers the chance, that fund managers become aware of possible behavioral biases that might affect their investment performance. With regard to identified improvement opportunities, I hope this dissertation will contribute to a productive discussion.

1.3 Questionnaire

International Survey in Professional Asset Management

By answering this questionnaire you are supporting an academic research project, which focuses on the personal viewpoints, perceptions and investment behavior of professional asset managers. Please fill in this questionnaire and send it to: Prof. Michael

Melvin, Department of Economics, Arizona State University, Tempe, AZ 85287-3806, USA (or to: luetje@gif.uni-hannover.de).

We would kindly ask you to answer the following questions completely and truthfully. The response will be kept in strictest confidence and anonymity. In addition, we will provide the results of our analysis to you on request.

A. Personal Data

Gender: ☐ Male ☐ Female

Marital status: ☐ Single ☐ Married ☐ Other

How old are you?

☐ < 31 ☐ 31 - 35 ☐ 36 - 40 ☐ 41 - 45 ☐ 46 - 50 ☐ > 50

Professional experience in asset management (in years):

☐ < 4 ☐ 4 - 6 ☐ 7 - 9 ☐ 10 - 12 ☐ 13 - 15 ☐ > 15

Average working hours per week:

☐ < 41 ☐ 41 - 45 ☐ 46 - 50 ☐ 51 - 55 ☐ 56 - 60 ☐ > 60

Average number of hours per week for data procurement and research: ___ hours/week

Educational level: ☐ Undergraduate degree ☐ Graduate degree

Current position within your company: ☐ Junior Asset Manager ☐ Senior Asset Manager ☐ Head of AM team ☐ CIO / CEO

Average bonus you receive in addition to your fixed salary: ___ %

Type of managed fund: ☐ Mutual fund ☐ Restricted / special / pension / hedge fund

Major investment segment: ☐ Equities ☐ Bonds ☐ Money market

Your company's total assets under management (in billion of $):

☐ < 5 ☐ 5 - 10 ☐ 10 - 20 ☐ 20 - 50 ☐ 50 - 100 ☐ > 100

Your personal responsibility for assets under management (in million of $):

☐ < 50 ☐ 50 - 250 ☐ 250 - 1,000 ☐ 1,000 - 2,500 ☐ 2,500 - 10,000 ☐ > 10,000

B. Performance Incentives

Do you participate in your company's stock option program? ☐ Yes ☐ No

If you receive a performance-based remuneration, which criteria determine the size of that bonus?	highest relevance					no relevance
Absolute fund performance	☐	☐	☐	☐	☐	☐
Relative fund performance	☐	☐	☐	☐	☐	☐
Business development of your investment company	☐	☐	☐	☐	☐	☐
Subjective assessment by superiors and colleagues	☐	☐	☐	☐	☐	☐

Please describe your investment performance and assess your achievement in asset management:	much better					much worse
How was your risk-adjusted performance last year – compared to your peers?	☐	☐	☐	☐	☐	☐
How do you assess your achievement in asset management – compared to your peers?	☐	☐	☐	☐	☐	☐

C. Your opinion on the general behavior of asset managers

Please assess the investment behavior of asset managers:	completely agree					completely disagree
People are not machines; thus security prices are clearly more determined by psychological influences than by fundamentals.	☐	☐	☐	☐	☐	☐
Herding is observable amongst professional asset managers.	☐	☐	☐	☐	☐	☐
Asset managers often disregard some information, if it does not complement their opinion.	☐	☐	☐	☐	☐	☐
Many asset managers prefer to invest in their local region rather than globally.	☐	☐	☐	☐	☐	☐
Following the herd benefits the asset manager's career.	☐	☐	☐	☐	☐	☐

D. Your personal investment behavior and information processing

Please describe your investment behavior by responding to the following statements:	completely agree					completely disagree
I prefer to take profits instead of cutting losses, when I am confronted with unexpected liquidity demands.	☐	☐	☐	☐	☐	☐
As a domestic asset manager I benefit from better information on domestic securities compared to market players overseas.	☐	☐	☐	☐	☐	☐
I often trade too much, as my clients demand short-term performance.	☐	☐	☐	☐	☐	☐

Most of the published business news does not surprise me at all. ☐ ☐ ☐ ☐ ☐ ☐

In case of loss positions in my portfolio I generally wait for a price rebound instead of selling those securities. ☐ ☐ ☐ ☐ ☐ ☐

I generally follow the trend. ☐ ☐ ☐ ☐ ☐ ☐

What is your personal forecasting horizon when making investment decisions?

☐ Days ☐ Weeks ☐ 2-6 Months ☐ 6-12 Months ☐ Years

Please assess the following sources of information used in making investment decision:

	highest relevance					no relevance
Fundamental facts about the company / market	☐	☐	☐	☐	☐	☐
Chart analysis / technical indicators	☐	☐	☐	☐	☐	☐
Discussions / exchange of views with colleagues	☐	☐	☐	☐	☐	☐
Investment transactions of other market players	☐	☐	☐	☐	☐	☐
Statements of opinion leaders within the industry (e.g. Buffett)	☐	☐	☐	☐	☐	☐
Statements of economic opinion leaders (e.g. Greenspan)	☐	☐	☐	☐	☐	☐

Please describe your management style:	high tracking error					indexing
What trading style are you allowed?	☐	☐	☐	☐	☐	☐
What trading style do you actually follow?	☐	☐	☐	☐	☐	☐

Please classify your personal risk-taking:	very risk averse					little risk averse
In respect of professional investment decisions, I mostly act…	☐	☐	☐	☐	☐	☐

Which strategies are your investment decisions normally based upon?

Please assign **100 % in total**. If a category does not apply at all, please assign 0 % to it.

___ % Momentum Strategy ___ % Buy-and-Hold Strategy ___ % Others

___ % Contrarian Strategy ___ % Dividend-oriented Strategy

How much importance do you attach to the following categories of information?

Please assign **100 % in total**. If a category does not apply at all, please assign 0 % to it.

___ % **Fundamentals** (economic and political hard facts)

___ % **Technical analysis** (charts and quantitative indicators)

___ % **(Order) Flows** (observed transactions)

What is your forecasting horizon when using this information?

Fundamentals:
☐ Intraday ☐ Days ☐ Weeks ☐ 2-6 Months ☐ 6-12 Months ☐ Years

Technical analysis:
☐ Intraday ☐ Days ☐ Weeks ☐ 2-6 Months ☐ 6-12 Months ☐ Years

(Order) Flows:
☐ Intraday ☐ Days ☐ Weeks ☐ 2-6 Months ☐ 6-12 Months ☐ Years

Apart from any fund's restriction – Imagine your portfolio's performance differs from its benchmark near the end of the period.

If my portfolio has *outperformed* its benchmark so far, I would...

☐ increase the relative risk level to become a top performer ☐ decrease the relative risk level to lock in the performance ☐ not change my strategy

If my portfolio has *underperformed* its benchmark so far, I would...

☐ increase the relative risk level to reach the benchmark ☐ decrease the relative risk level to avoid further deficits ☐ not change my strategy

Imagine someone offers you a bet and the odds are fifty-fifty. You will have to pay $1,000 from your personal account if you lose. What would be the minimum amount you would expect to win to lure you into accepting the bet?

At least $_____.

Please estimate the level of the *S&P 500*, the *Dow Jones* and the *EuroSTOXX 50* within the next month. Please forecast the performance of the respective index with a probability of 90 %:

Date: __/__/__ (mm/dd/yy)	**S&P 500**	**Dow Jones**	**EuroSTOXX 50**
Today's level:			
Expected minimum level:			
Expected maximum level:			

What are your long-term expectations for the next 10 years? *=German survey only=*

Even if it is difficult to forecast long-term developments, we would like to ask you to estimate the respective development within the next *10 years* (in %).

		Germany	**Europe**	**USA**	**Asia**
Stock market	average stock yield per year (in local currency):				
Bond market	average government bond yield per year with rating AAA (in local currency):				
Inflation	average inflation rate per year (Consumer Price Index):				
Companies	average dividend increase per year of blue-chips (in local currency):				

Apart from any fund's restriction – Please allocate an amount of €10 mn. to invest in the following regions (adding up to 100%): *=German survey only=*

___ % Germany ___ % USA and Canada ___ % Emerging Markets

___ % Europe (ex. Germany) ___ % Asia

Thank you very much for your participation!

Please return this questionnaire to:

Prof. Michael Melvin, Department of Economics,
Arizona State University, Tempe, AZ 85287-3806,
United States

To request *further copies* or an *electronic version* of this questionnaire please contact Mr. Torben Lütje
luetje@gif.uni-hannover.de

2. Fund managers in Germany: What do they think and what do they do?[5]

2.1 Introduction

Fund management has increasingly gained importance during the past decades not only in Germany, but globally. On the one hand, market capitalization and turnover grew faster than economies' added value. So, financial markets expand more in relation to commercial markets. On the other hand, the market share of assets under management has been increasing for years. As a result, fund management gains additional importance in a growing market. What do we know about this influential business in Germany today? What do fund managers think and what do they do? An extensive survey provides evidence on relevant incentives, the use of different information and specific decision making. By unveiling strengths and weaknesses of fund management the survey discloses starting points for improvement opportunities.

Most information about fund management is concluded from transaction analyses. It is known that professionals hold comparative advantages over private investors (Menkhoff, 2001). In contrast, it becomes obvious that even professionally managed funds have problems in outperforming the market development in Germany (e.g. Theissen and Greifzu, 1998, Kempf and Griese, 2003) as well as worldwide (e.g. Malkiel, 1995, Carhart, 1997). Besides, specific preferences of fund managers have been identified – for example the preference for liquid securities making reconstructions of large portfolios easier (Falkenstein, 1996, Grinblatt and Keloharju, 2001). Furthermore, different investment strategies have been analyzed, especially the popular momentum strategy (e.g. Grinblatt et al., 1995, Badrinath and Wahal, 2002). Finally, possible herd behavior

[5] I would like to thank my co-author Lukas Menkhoff. We appreciate helpful comments by Daniela Beckmann, Wolfgang Raab, Maik Schmeling and Norbert Tolksdorf. Moreover, we would like to thank the German Investment and Asset Management Association 'BVI' for its very useful supporting letter as well as the 'Wissenschaftsförderung der Sparkassen-Finanzgruppe e.V.', the research arm of the German savings bank organization, for financial support. Last but not least, we are deeply grateful to all the fund managers who participated in the survey and who were available as interview partners, respectively.

has been considered, but the evidence provided is rather weak (e.g. Lakonishok et al., 1992a, Wermers, 1999, and Sias, 2004).

Apart from these and other studies that are focused on investment decision, there are only few studies that directly consider the people in fund management who make the decisions. The research done by Chevalier and Ellison (1999, 1999a) is outstanding – the authors combine two data sets: transaction data on the one hand and personal characteristics of the respective fund manager on the other hand. However, the descriptive data only compounds the managers' age and education. So there is no evidence as to which kind of information predominantly influences fund managers' transactions. Shiller and Pound (1989) are the first to conduct surveys to unveil the latter. This research tool provides the possibility to collect diverse data on fund managers' characteristics and views, e.g. how they assess the markets, by what incentives they are influenced and how they decide.

Our study uses this method and is based on a questionnaire survey conducted with the member firms of the German Investment and Asset Management Association 'BVI' in the 2nd quarter of 2003. All in all, we received responses from 263 fund managers, who approximately represent this professional group. This article provides an overview about the answers given.[6]

Fund managers perceive different inefficiency of the markets, like strong herding within their group and substantial psychological influences on pricing. In contrast, they predominantly use fundamental information, but also pay attention to discussions with their colleagues and technical analysis. Moreover, their investment behavior is possibly less biased by the disposition effect, i.e. the behavioral bias to sell outperforming securities too early and to hold underperformers too long, compared to other investors. We identify improvement opportunities regarding the following topics: First, regarding institutional herd behavior, which also reflects reluctance, higher risk aversion and biased investment behavior. Second, asset managers' serious consideration of non-fundamental information. Third, their embarking on different investment strategies whose conditions of success are not always complied and fourth, a home bias that is barely ascribable to valid advantages of information. These improvement opportunities refer to deviations from recommended investment behavior from a theoretical point of view that might not always be easily conducted in practice.

The paper is structured into five more sections. Section 2.2 presents the data set and survey methodology. Section 2.3 discloses what fund managers think about the market and in Section 2.4 they describe their own behavior. In Section

[6] There are some more specific analyses that are based on the same data sample, like e.g. Lütje (2004), Lütje and Menkhoff (2004a) as well as Stotz et al. (2004).

2.5 we reflect on different answers from an academic point of view and Section 2.6 summarizes and concludes the paper.

2.2 Data

The data sample compounds 263 responses from a questionnaire survey addressed to the fund managers of BVI member firms. The quality and significance of answers given in a written survey critically depend on the right selection of questions and their right formulation. Thus, we discussed draft versions of the questionnaire with fund managers in personal interviews during the development period from February to March 2003. The questionnaire's applicability has also been confirmed as being successful.

During the period of data collection from April to June 2003 all BVI member firms of equity and bond fund management were repeatedly contacted to ask for their participation. The BVI supported this research project with a letter of recommendation to its member firms. First, we contacted the investment companies by mail and then conducted follow-up activities by telephone as well as by email. During this period, we were able to convince several fund managers to act as multipliers by forwarding the questionnaire to their colleagues. Accordingly, we cannot report an unbiased response rate regarding the questionnaires provided. We would rather like to point out the high participation rate of 77.3% of investment companies, a percentage not often reached in other studies. In detail, we mailed our questionnaires to 66 investment companies of which 51 participated (other surveys e.g. Shiller and Pound, 1989 and Bodnar et al., 1996, achieved response rates of 45% and 18%, respectively). With regard to the individual feedback of fund managers, the large data sample and the high participation rate, the data sample seems to be applicable for an analysis of the fund management industry in Germany.[7]

However, one has to question whether the data sample can adequately represent the fund management in Germany. The results given in *Table 2-1* confirm the representativeness as the structure of the data sample sufficiently equals the structure of industry in Germany: The null hypothesis that there are no structural size differences between participating companies and all BVI member firms cannot be significantly rejected. Moreover, bigger investment companies, which are expected to have more market impact, participated with a significantly higher

[7] In comparable recent survey studies conducted in Germany Arnswald (2001) analysis equity fund management, Gehrig and Menkhoff (2003) focus on foreign exchange management and Brozynski et al. (2004) discuss behavioral finance questions in equity and bond management.

number of questionnaires in the survey. All in all, the generated data seems to be suitable to represent the typical point of view of the fund management in Germany.

Table 2-1
Comparison of the data sample with industry's structure

	Structure of the German asset management industry (by assets under management)
Structure of the data sample (by assets under management)	H_0: no difference[1)] -0.669 (0.503)
	Correlation[2)] with company size (by assets under management)
Number of answered questionnaires per company	0.678*** (0.000)

The market data is based on the annual report 2003 of the BVI (www.bvi.de).
1) The table gives the z-value of the Mann-Whitney U-test with the p-value in parentheses.
2) The table gives the coefficient of the Pearson Correlation with the p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

The descriptive statistics in *Table 2-2* illustrate the fund managers' personal characteristics. The typical fund manager is male and married, barely 35 years old and his professional experience is about 6 years on average. His mean working effort amounts to approximately 50 working hours per week (including about 20 hours for data procurement and research). Moreover, a fund manager typically holds a graduate degree and is in a senior management position. He usually manages rather equities than bonds and is predominantly responsible for special funds. This description of the typical fund manager is in line with findings in other recent studies of the German fund management industry, like e.g. Arnswald (2001) and Brozynski et al. (2004).

2.3 What do fund managers think about their colleagues' investment behavior?

Fund managers' viewpoints about their markets – as well as the Sections 2.4 and 2.5 – will be divided into the three relevant steps of the investment process: First, incentives affecting fund managers' investment behavior are in principal given exogenously. Under this influence they choose relevant information for their investment decisions. The latter are also affected by further influences, like,

for example, the fund managers' risk taking behavior. These three elements – incentives, information and decisions – build a cluster, in which the following research results can be classified. In case there are significant differences between equity and bond managers, we will point out this.

The incentives for fund managers are set directly by their companies and indirectly by their clients. A major question is the meaning of controversially discussed herd behavior as a possible outcome: Does herding benefit the fund manager's career? On a scale of six answer categories, ranging from "completely agree" to "completely disagree", 60% of the fund managers disagree with that statement and only 13% agree with the strongest and second strongest degree (*Table 2-3*, statement 1). So herding does not seem to be predominantly driven by career concerns; a story that we will discuss later on in more detail.

Table 2-2
Fund managers' personal characteristics

Characteristics	Answer categories and distribution of answers						N
Gender / Marital status	*male* 90.0%	*female* 10.0%		*single* 44.1%	*married* 53.5%	*other* 2.4%	261 / 254
Age (in years)	*< 31* 21.0%	*31 – 35* 35.5%	*36 – 40* 22.9%	*41 – 45* 14.9%	*46 – 50* 3.8%	*> 50* 1.9%	262
Prof. experience (in years)	*< 4* 32.0%	*4 – 6* 20.7%	*7 – 9* 19.1%	*10 – 12* 10.9%	*13 – 15* 7.8%	*> 15* 9.4%	256
Average working hour per week	*< 41* 1.9%	*41 – 45* 17.9%	*46 – 50* 45.9%	*51 – 55* 23.7%	*56 – 60* 6.2%	*> 60* 4.3%	257
Educational level	*non-academic* 13.2%	*academic* 86.8%					257
Occupational level	*Junior manager* 32.0%	*Senior manager* 46.1%		*Head of asset management team* 16.4%		*CIO or CEO* 5.5%	256
Type of managed fund	*Mutual fund* 32.5%	*Special fund* 50.6%		*both* 16.9%			249
Major investment segment	*Equities* 71.7%	*Bonds* 26.7%		*Money market* 1.6%			242

Table 2-3
Assessment of other fund managers' investment behavior

Assessment of typical investment behavior of fund managers by dint of the following 5 statement:	completely agree (in %)					completely disagree (in %)	Share of agreement[1] (in %)	N
[1] Following the herd benefits the fund manager's career.	3.8	9.5	26.7	20.2	30.2	9.5	40.1	262
[2] Security prices are clearly more determined by psychological influences than by fundamentals.	10.0	37.9	29.5	13.4	5.7	3.4	77.4	261
[3] Fund managers often disregard some information if it does not complement their opinion.	5.7	21.4	30.9	22.9	14.1	5.0	58.8	262
[4] Herding is observable amongst professional fund managers.	20.5	46.4	24.3	2.7	2.3	3.8	91.3	263
[5] Many fund managers tend to invest in nearby financial markets.	5.3	27.8	28.5	9.4	14.1	4.9	61.6	263

[1] The share of agreement is calculated as the sum of answers given to categories 1-3.

Regarding the kind of information that is important from the fund managers' point of view, we realize that 77% of the people surveyed consider psychological influences to have a stronger impact on pricing than fundamentals (Table 2-3, statement 2). Furthermore, 59% rather agree with statement (3) that fund managers possibly disregard some objective information. These two results contradict efficient markets with working processing of fundamental information (see also Hirshleifer, 2001, Barberis and Thaler, 2003, Menkhoff and Röckemann, 1994).

The perhaps highest deviation from market efficiency becomes obvious in the assessment of statement (4), as 91% of the fund managers agree that herding is observable amongst fund managers. It is interesting that professionals so involved state this agreement. Here, we would like to point out that the comprehension of herd behavior has been checked in the interviews before: It is exclusively understood as intentional behavior to follow the herd, even if one's own information would recommend distancing oneself from it (see Bikhchandani and

Sharma, 2001).[8] However, it is surprising that more than 90% of fund managers perceive herding, but according to statement (1) only 40% believe in its benefits for the career. In this respect, there would seem to be a lack of explanation. Finally, 62% of the surveyed are of the opinion that fund managers prefer to invest in local regions rather than globally (statement 5). This indicates a home bias and, therefore, somewhat inefficient investments (Lewis, 1999).

All in all, regarding the analyzed items of the investment process, we have the impression that fund managers do not believe that they act in efficient markets (see Shiller, 2003). So it is more than interesting to know to how they actually behave (as per self-assessment).

2.4 What do fund managers say about their own behavior?

2.4.1 Incentives

Section 2.4 is structured like the previous one, according to these three items of the investment process: incentives, information and decisions. Relevant incentives affecting fund managers' operative behavior are indirectly the clients' guideline as well as directly being control instruments of the respective investment company. It becomes obvious that only 10% of German fund managers participate in a stock option program, but performance-related bonus payments are very popular. The mean bonus amounts to about 30%, depending on the occupational position. This result equals the finding in Arnswald (2001) (see *Table 2-4*, lower part). The slightly lower willingness to answer this question does not mean that a bonus is not often paid, but is attributable to confidential treatment of compensation details. From the fund managers' point of view, there are in particular three driving factors that determine the bonus: First of all, 93% of the respondents assess the development of their investment management company as being relevant (Table 2-4, upper part). Thereafter follows that 80% of the fund managers consider the relative fund performance as important[9] and the subjective assessment by superiors with 86% shows it to be of general importance, but comparatively less appreciation as being very important. In contrast, absolute fund performance plays a minor role as only 34% of the fund managers consider

[8] Incentives of remuneration schemes and career concerns seem to induce selective use of information with the result of a clearly observable herding.

[9] Equity fund managers ascribe significantly more importance to relative performance measurement than bond fund managers do.

this factor as being important for the bonus. The order becomes clearer if we only consider the answer category "highest relevance": We find that the business development of the investment company is most important (31%), followed by relative fund performance (27%), assessment of superiors (17%) and far behind absolute fund performance (5%).

Due to the fact that a single fund manager is only able to influence a company's development marginally, this factor is probably the most important criterion for the level of the bonus – but it will not dominate the fund manager's investment behavior (expect from CEO's).[10] On the contrary, the fund manager can pull the strings to achieve adequate relative performance by making good investment decisions. The subjective assessment by superiors (and colleagues) is on the other hand a soft criterion of success that is also influenced by the investment performance. In short, beating the benchmark is probably the priority objective for most of the fund managers. What kind of information do they use to achieve their aim?

2.4.2 Information

Fund managers are really overwhelmed with information. So one of their tasks is a reasonable and adequate selection of data, statements and analyses. What do fund managers particularly regard? A lot of different information sources have been identified in the preliminary personal interviews and their relative importance can be analyzed by dint of the survey.

Table 2-5 documents a clear result: nearly 45% of the fund managers ascribe highest relevance to fundamental company and market information. At the highest level the fundamentals are followed by discussions und exchange of views with colleagues (15%) and subsequently chart analysis and technical indicators (6%). None of the other three sources of information are of highest relevance for any of the fund managers. A plausible exception is that bond managers pay considerably more attention to statements of economic opinion leaders, since central banks possess private information due to their power of decision and so they are able to influence the whole fixed income market. A possible implication of central banks' interest rate policy of step-by-step adjustments is that bond managers

[10] However, it is also possible that the orientation on company's business development implies further (negative) incentives, e.g. the focus on portfolio turnover or (short term) acquisition of new customers. Moreover, it is also found that even a portfolio investment orientation does not necessarily increase the market value of the respective company (Prigge and Steenbock, 2002).

use relatively more technical analysis and pay also more attention to investment decisions of other market players than equities managers do.

Table 2-4
Variables of performance-based compensation

	highest relevance (in %)				no relevance (in %)		Share of high relevance[1] (in %)	N
Business development of investment company	30.9	38.7	23.5	4.3	0.0	2.6	93.0	230
Relative fund performance	26.5	36.7	16.8	7.5	5.8	6.6	80.1	226
Subjective assessment by superiors and colleagues	17.2	41.6	27.1	10.4	2.3	1.4	86.0	221
Absolute fund performance	4.7	14.2	15.2	18.5	22.5	24.6	34.1	211
Average bonus received (in %)	Mean:		30.1					173
Participation in stock option program? (in %)	Yes:		9.8					256
	No:		90.2					

The table is based of the following question: "If you receive a performance-based remuneration, which criteria determine the size of that bonus?"
[1] The share of high relevance is calculated as the sum of answers given to categories 1-3.

The overall picture of the importance of different sources of information is going to change further if we do not concentrate on "highest relevance" only, but consider the following two categories of relevance as well. This aggregation looks at high importance in general. Then, the difference in importance is notably smaller and we realize that not only fundamental sources of information were considered. Even if fundamentals still play the major role with an approval of 95%, 79% ascribe to discussions with colleagues a high relevance and technical analysis achieves 71%, whereas the other three sources of information significantly fall behind. Thus, it becomes obvious that in practice non-fundamental information is also relevant in addition to the importance of fundamentals.

Table 2-5
Relevance of specific sources of information for investment decisions

	highest relevance (in %)				no relevance (in %)		Share of high relevance[1] (in %)	N
Fundamental facts about the company / market	44.9	41.1	9.1	1.5	2.7	0.8	95.1	263
Chart analysis / technical indicators	5.7	33.5	31.6	7.6	13.3	8.4	70.7	263
Discussions / Exchange of views with colleagues	15.3	33.0	30.3	13.0	4.6	3.8	78.5	261
Investment decisions of other market players	1.1	7.6	22.4	25.1	29.3	14.4	31.2	263
Statements of opinion leaders within the industry (e.g. Warren Buffett)	0.4	2.7	16.0	28.1	27.8	25.1	19.0	263
Statements of economic opinion leaders (e.g. A. Greenspan, W. Duisenberg)	2.3	14.8	26.2	20.5	25.1	11.0	43.3	263

The table is based of the following request: "Please assess the following sources of information used in making investment decision."
[1] The share of high relevance is calculated as the sum of answers given to categories 1-3.

2.4.3 Decisions

Incentives and information form the framework within which fund managers make their investment decisions. By which further factors is their decision making additionally affected? To analyze this, we refer to two statements that were already discussed concerning the fund managers' market view in Section 2.3: Herd behavior and the preference for investments in home markets. Then we consider further factors that may influence investment decisions: the disposition effect and preferred investment strategies.

While 50% of the fund managers agree to follow trends, i.e. to do herding, (*Table 2-6*, statement 1) the other half of them disagree with that statement. This is surprising, because more than 90% of the fund managers perceive institutional herd behavior. So, fund managers assess themselves as notably different from their colleagues. The "better" self-perception also becomes obvious regarding

the home bias in investment decisions. The latter is perceived by 62% (Section 2.3), but according to statement 2 in Table 2-6 it is clearly lower than the actual share of international investment diversification. However, the share of German investments that fund managers choose on average is two or three times higher than the German share of the world market capitalization (see Lütje and Menkhoff, 2004a).

A behavioral bias that is often discovered in different empirical studies is the so-called "disposition effect". It is defined as disposition to sell winners too early and to ride losers too long (see Shefrin and Statman, 1985). Hence, it is not astonishing at all that this bias has been identified as a source of underperformance (Odean, 1998). In our study, the assessment of statement 3 serves as an indicator of the disposition effect. Accordingly, the survey provides evidence that 38% of the fund managers tend to have such a behavioral bias (whereas it is somewhat more distinct for bond managers than for equities managers). However, we also find that 25% of the surveyed clearly disagree about underling the disposition effect. In contrast, the analysis of a discount broker's trading data in Odean (1998) unveils a significant preference of individual investors to taking profits instead of cutting losses (see also Weber and Camerer, 1998). So fund managers seem to have a less distinctive disposition effect than average investors. This would be in line with the finding in Shapira and Venenzia (2001) that professionals underlie decision biases less.

Finally, question 4 in Table 2-6 aims at preferred investment strategies. With regard to the outstanding importance of fundamental information as shown in Section 2.4.2, one might expect that the appropriate dividend-oriented strategy plays the major role. Buy-&-hold strategies are related, as they focus a significantly longer investment horizon than short term technical strategies do. Fund managers actually embark on less fundamental investment strategies: momentum and contrarian strategies (together 42%) outweigh the two fundamental oriented strategies (together 35%).[11] However, the slight preference for the momentum strategy (27%) does not contradict rational behavior, because of robust results that indicate outperformance (Jegadeesh and Titman, 2001, Rouwenhorst, 1998, Griffin et al., 2003; and Schiereck et al., 1999, for the German market).[12]

[11] These mean answers obscure the fact that most of the fund managers operate with different strategies, as is found in analyses of their transactions (see Keim and Madhavan, 1995, Badrinath and Wahal, 2002) as well as per self-evaluation (see Brozynski et al., 2004).

[12] The personal interviews provide evidence that this strategy is exclusively understood as taking advantage of price movements, i.e. price momentum, but not as return momentum.

Table 2-6
Further influences of fund managers' investment decisions

	completely agree (in %)					completely disagree (in %)
[1] "I generally follow the trend" (N=259)	2.3	13.5	34.4	24.3	17.0	8.5
Share of agreement[1)] (in %):			50.2			
[2] "Apart from any fund's restrictions – Please allocate an amount of 10 mn. € to invest in the following regions (adding up to 100%)." Investment in Germany:						
Mean answer equities managers (in %, N=148):			11.8			
Mean answer bonds managers (in %, N=48):			15.5			

	completely agree (in %)					completely disagree (in %)
[3] "I prefer to take profits instead of cutting losses, when I am confronted with unexpected liquidity demands." (N=259)	3.5	12.0	22.4	15.4	21.6	25.1
Share of agreement[1)] (in %):			37.8			

[4] "What strategies are your investment decisions normally based on?" (in %, N=245)

Dividend-oriented	Buy-&-hold	Momentum	Contrarian	Others
8.6	26.2	26.6	15.8	22.9

[1)] The share of agreement is calculated as the sum of answers given to categories 1-3.

Accordingly, the findings on the fund managers' self-assessment do not completely correspond to their market view: While financial markets – and associated the behavior of other fund managers – are seen as less efficient (Section 2.3), the fund managers actually show an investment behavior that is more in line with theoretically preferred expectations.

2.5 What characterizes fund managers from the academic point of view?

After presenting fund managers' views on the markets (Section 2.3) and their self-assessment of their own behavior (Section 2.4), this section deals with the interpretation of the fund managers' answers given. Therefore, we pick up subjects of the investment process that have already been discussed before: First of

all, it seems to be interesting to follow the effect of career concern on herd behavior and thereafter the use of non-fundamental information. Then, in the context of "decisions", the motivation of investment strategies and the home bias will be discussed. What all of these subjects have in common is that interesting questions on the conflict between market view and self-assessment will arise.

2.5.1 Herding

Herd behavior, as it is understood here, means basing one's decisions less on one's own information, rather than trusting in perceived behavior of other market players. Thus, not all of the available information will be reflected in prices. That can possibly lead to biased pricing. Nevertheless, it can be rational for the single fund manager to mimic the investment decision of other market participants, i.e. to follow the herd. An unprofitable investment decision will harm the fund manager's reputation significantly less if others make the same mistake as well. Thus, herding provides decision makers with the opportunity of the sharing-the-blame effect (see Scharfstein and Stein, 1990). Chevalier and Ellison (1999a) find evidence that younger fund managers tend more to herding compared to their older colleagues, as they are more at risk of being fired for bad performance. The results in Lütje (2004) indicate that herding managers expect benefits from this kind of behavior for their career. However, we critically have to question whether their herding is not rather an expression of their reluctance.

The results in *Table 2-7* demonstrate that herding managers tend to show less working effort than non-herding managers, measured by average working hours per week. This relative reluctance of herding managers might be triggered by their motivation "only" to achieve the average performance of the herd, but not trying to outperform it. On the contrary, it is plausible that managers who do not want to "hide" in the herd will show more working effort to achieve an outperformance of the herd and, hence, justify the deviation from the majority opinion.

Table 2-7
Correlation of herding with further characteristics

	Coefficients of the Spearman Rank Correlation (p-value)	
	Less working effort	Stronger disposition effect
Personal Herding	0.175*** (0.005)	0.264*** (0.000)

The distribution of answers regarding average working hours per week is given in Table 2-2. The extent of the disposition effect is illustrated in a stronger agreement with statement 3 in Table 2-6. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

It becomes obvious that the willingness to conformity is connected with a more conservative risk-taking behavior, as herding managers underlie the disposition effect to a higher extent than non-herding managers obviously do (see Table 2-7). The disposition effect is linked to higher loss aversion and losses have to be realized when closing the positions that have been held too long.[13]

So the survey result signalizes that herding can be interpreted as rational adjustment in practice, but it might also reflect some reluctance of the market participants. The latter is attributable to convenience on the one hand, but it can also be an indication of excessive risk aversion to one's own decision-making on the other hand.

2.5.2 Non-fundamental information

Fund managers ascribe a high importance to non-fundamental influences on financial markets, especially psychological influences (see Barberis and Thaler, 2003; Hirshleifer, 2001). Hence, it is interesting to know what conclusions they draw for their own information processing. The result in Section 2.4.2 was ambivalent in this respect: On the one hand, they clearly prefer fundamental information; on the other hand, non-fundamentals play a non-negligible role as a whole. A first question regarding possible relations of market view and individual behavior arises from that result: Does a stronger perception of psychological influences make the decision maker use more non-fundamental information, like technical analysis, as shown by e.g. Gehrig and Menkhoff (2003)?

The first output column in *Table 2-8* answers this question and related coherences with a rank correlation. In fact, it is found that a stronger perception of psychological effects is correlated with the use of information sources. It seems to be comprehensible that the behavior will rather be influenced by the specific market view than e.g. by the preference for fundamental information, which in turn affects the market view. In this respect, a fundamental market view will cause a more intensive use of fundamentals, i.e. a negative coefficient in the table – due to encoding. On the other hand, we find that fund managers who ascribe more importance to psychological influences than to fundamentals trust comparatively more in non-fundamental information, as they significantly conduct more technical analysis and pay higher attention to other market players' investment decisions.

[13] Furthermore, herd behavior is also associated with other kinds of distinctive risk aversion (see Lütje, 2004).

Table 2-8
Sources of information, market assessment and forecasting horizon

Sources of information	Coefficients of the Spearman Rank Correlation (p-value)					
	Psychology more important than fundamentals[1)]		Information often disregarded[1)]		Longer forecasting horizon[2)]	
Fundamentals	-0.208***	(0.001)	-0.124**	(0.044)	0.233***	(0.000)
Technical analysis	0.308***	(0.000)	0.131**	(0.034)	-0.258***	(0.000)
Colleagues	-0.093	(0.134)	-0.153**	(0.013)	0.023	(0.717)
Other market players	0.240***	(0.000)	0.195***	(0.001)	-0.055	(0.380)
Opinion leaders (industry)	0.117*	(0.059)	0.073	(0.236)	0.061	(0.328)
Opinion leaders (economy)	0.054	(0.382)	0.102*	(0.098)	0.028	(0.650)

For detailed information about the relevance of specific sources of information see Table 2-5. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

1) Exact formulation of questions is given in Table 2-3 (statements 2 and 3). Evaluation ranges from "1" (completely agree) to "6" (completely disagree).

2) Categories range from "days" (0.8%), "weeks" (13.2%), "2-6 months" (59.3%), "6-12 months" (21.3%) to "years" (5.4%).

Further conclusions can be drawn from the second output column in Table 2-8 by referring to a question of Table 2-3 again. The prevalent disregard of information can be understood as an indicator of inefficient markets. This could induce either the use of fundamental information sources to benefit from non-reflected fundamentals on the one hand, or the use of non-fundamentals to account for the lack of fundamental orientation in the analyses on the other hand. The coefficients in the second output column show that perceived market inefficiency actually induces a more intensive use of non-fundamental information. Investment decisions of other market participants are of particular interest and are apparently subject to being identified by the use technical analysis.

Finally, regarding the high appraisal of fundamentals as well as non-fundamental information, we realize that most of the fund managers obviously use both kinds of information sources side by side. The consideration of another question regarding the typical forecasting horizon when making investment decisions may help to shed further light on fund managers' treatment of information. The third output column in Table 2-8 shows that the use of fundamental information is linked with a longer forecasting horizon, whereas the intensive use of technical analysis increases in the shorter term. To this extent, these two sources of information are used to complement each other (see e.g. Gehrig and Menkhoff, 2003).

To sum up, fund managers are predominantly – and apparently more than private investors – focused on fundamentals. That's good news. Surprisingly, they also ascribe high importance to non-fundamentals; especially for short term investment decisions like timing. That would absolutely appear as plausible to practitioners – why should they abandon available information? However, it is questionable whether this kind of information is actually valuable. Or does the attempt to benefit from moods rather worsen investment performance?

2.5.3 Investment strategies

From the fund managers' point of view, nothing seems to be as sure as the existence of herding in financial markets (see Section 2.3). So, it is a consequent behavior when market players try to benefit from others' herding by dint of their investment strategies. Apart from the rather cautious and fundamental-orientated buy-&-hold strategy, two further investment strategies are really popular: the momentum strategy and the contrarian strategy. The momentum strategy recommends buying the outperformers of the last 3 to 12 months and holding them for approximately the next 6 months (Jegadeesh and Titman, 1993). On the other hand, the contrarian strategy attempts to make profits by buying the past winners of e.g. the last 12 months and holding them for 36 to 60 months (De Bondt and Thaler, 1985). Both of these strategies are based on the expectation that share prices move in trends over time. While the momentum strategy assumes a phase of exaggeration, i.e. an aversion from the mean price level, the contrarian strategy trusts in the opposite development, i.e. a mean reversion. It seems to be plausible that herding of various market players can cause price movements and the strategies mentioned try to benefit from this. What relations are found in the survey?

The results in *Table 2-9* illustrate that those fund managers who see comparatively more herding, try to benefit from this by using more technical analysis and embarking on momentum and contrarian strategies respectively. Additionally, momentum investors confirm that they follow the trend. Only for fund managers who follow the buy-&-hold strategy is there no significant relation to the use of non-fundamental sources of information (advantages of indexed investments are presented in e.g. Malkiel, 2003). By means of the forecasting horizon, one can discriminate between the strategies more clearly: Technical investment strategies are used in the short term. However, empirical performance studies provide evidence that at least the contrarian strategy is profitable in the long term only (see e.g. De Bondt and Thaler, 1985). Thus, the use of the contrarian strategy and the

focus on short term performance seem to be problematic.[14] Finally, the more intensive use of momentum and buy-&-hold strategy is connected with a stronger disposition effect.[15] It may surprise at first sight that momentum traders also tend to have a disposition effect. But, in the study of Grinblatt et al. (1995), which provides evidence for the predominant use of momentum strategy, it is already found that outperformers were methodically purchased, but underperformers were not systematically sold.

Summing up, all the strategies presented are afflicted with potential problems, whereas the implementation of the contrarian strategy seems to be the most troubled from an academic point of view.

2.5.4 Home bias

Fund managers perceive preferences for nearby financial markets in other managers' investment behavior (Section 2.3) and their own behavior reflect this home bias as well, since they prefer to invest in their local region rather than globally (Section 2.4.3). In the academic debate of this kind of behavior there are two opposing approaches to an explanation: On the one hand home bias can be based on a rational basis as it may reflect local advantages of information (Gehrig, 1993), while, on the other hand, home bias is considered as incompletely rational behavior, because the possibility of diversification is neglected (Shiller et al., 1996). What do the survey results indicate?

To contribute to the answer to this question, we analyze the fund managers' use of information. Advantages of information should particularly appear in a stronger use of fundamental sources of information. On the contrary, technical analysis, for instance, is an instrument that is not based in local knowledge, but it uses commonly accessible data on price movements among other things. In this respect, *Table 2-10* draws a clear-cut picture: A stronger preference of German fund managers for investments on the home market is undoubtedly connected to the higher importance they ascribe to non-fundamental information. Accordingly, fund managers' home bias is also positively correlated with their herd behavior. This result indicates that fund managers' ascertained home bias is not at-

[14] This relation may be linked to the fact that short term oriented traders sometimes follow the trend and in other situations they make investment decisions contrary to the market trend.

[15] Algebraic signs for the disposition effect correspond to those in Brozynski et al. (2004), however, they are statistically significant here. Note, that the contrarian strategy in Brozynski et al. is somewhat differently defined, as it also comprehends "value-investing". In our study it is rather contained in dividend-oriented strategy. Insofar, the deviating results are not comparable.

tributable to a rational specialization on local advantages of information. In line with the focus in the literature on stock markets, the above-mentioned results are derived from the responses of equities fund managers only.

Table 2-9
Influence of different investment strategies

	Coefficients of the Spearman Rank Correlation (p-value)				
Strategies	More herd behavior perceived	More technical analysis used	I generally follow the trend	Longer forecasting horizon	Stronger disposition effect
Buy-&-Hold	-0.004 (0.948)	-0.043 (0.502)	0.035 (0.589)	0.216*** (0.001)	0.233*** (0.000)
Momentum	0.118* (0.066)	0.434*** (0.000)	0.341*** (0.000)	-0.308*** (0.000)	0.127** (0.048)
Contrarian	0.099 (0.124)	0.231*** (0.000)	-0.006 (0.931)	-0.135** (0.037)	-0.076 (0.239)

Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Table 2-10
Relation of Home Bias and further market assessments

	Coefficients of the Spearman Rank Correlation (p-value)		
Investment in Germany (in %)	Fundamentals of high relevance	Technical analysis of high relevance	I generally follow the trend
Equities fund managers	-0.062 (0.452)	0.142* (0.085)	0.246*** (0.003)
Bonds fund managers	0.064 (0.665)	0.060 (0,683)	-0.021 (0.889)

Stars refer to level of significance: * 10%, ** 5%, *** 1%.

The findings on home bias can be considered from two different angles again: It is favorable to fund managers that the absolute extent of the home bias is comparatively small, as it is far below current national concentration of assets.[16]

[16] In the practice of investment management there exist incentives towards home bias, e.g. due to benchmarks given by clients, lower supervisory restrictions or the avoidance

What is thought-provoking, however, is that only a minority group of fund managers have no home bias and that this behavior is hardly compatible with rationality (see in more detail Lütje and Menkhoff, 2004a). All of this indicates an incomplete utilization of the feasible risk return trade-off.

2.6 Conclusions

This study analyzes thinking and acting in fund management in Germany based on a questionnaire survey of 263 fund managers. It provides evidence that these professional market players apparently assume they are acting in mostly inefficient markets. They particularly perceive herding of other fund managers to a large extent and massive psychological influences on pricing. In addition, they recognize selective use of information as well as the preference for investments in nearby markets.

On the other hand, they describe their own behavior more in line with patterns theoretically expected in efficient markets. Financial incentives are predominantly determined by the development of the investment company and the relative performance of assets under their own management. Fund managers principally base their investment decisions on fundamental information on companies and markets. Even if half of the fund managers tend to follow the trend, the extent of this behavior is mostly limited. The home bias that appears is relatively low compared to the preference of real international asset allocation. Furthermore, fund managers seem to be less affected by the disposition effect than other investors on average. Lastly, they use passive buy-&hold strategies as well as active investment strategies, like momentum trading, which perform very well in empirical studies.

Apart from these very positive findings, there is also cause for critical requests and, respectively, the chance for the investment companies to take improvement opportunities. In general, the discrepancy between market view and self-assessment attracts attention. If only the self-assessment relatively conformed with theoretical expectations, one could image strategic answers. But, the relatively critical market view is not conformable with that assumption. To this extent, the answers may fit into a pattern that is generally found in psychological research: a too favorable self-assessment (Barberis and Thaler, 2003; and De Bondt and Thaler, 1995). This is human, but in this context it is not unproblematic, as it may affect the investment behavior and as a consequence thereof it

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of additional costs for currency hedging. Furthermore, it could also be a pretended home bias, if not only the assets were considered, but also the liabilities.

may worsen the performance. Four problematic topics are discussed in this regard.

First of all, rational motives for herding have theoretically been identified. Our study, however, unveils the shady sides of that behavior as it is linked with lower working effort and higher risk aversion, which is affected by behavioral biases. Second, apart from any fundamental orientation, it is conspicuous that fund managers also have a distinctive appreciation for non-fundamentals. Again, there exist theoretical models considering this use of information as rational (e.g. De Long et al., 1990), but it can also reflect a widely psychological view on market development and short term orientation. Third, fund managers embark on different investment strategies that are justified by empirical literature in each case. But particularly concomitant circumstances when using the contrarian strategy are not in line with the requirements as identified in the literature. Fourth, a home bias can possibly be based on local advantages of information, but the behavior of equity fund managers rather indicates their preference for technical analysis and trend following behavior.

Regarding the relevance of the results presented here, we have to bear in mind the following two constraints: On the one hand, one can hardly neglect the results as being irrelevant, since they are based on voluntary and anonymous answers. Thus, the identified strengths and weaknesses should really exist. On the other hand, it is only about tendencies compared to theoretically advisable behavior, the practicability of which has not been analyzed here.

The scope of interpretation may be exemplified: The survey provides clear evidence for a home bias. Compared to the real investment allocation highly affected by customer wishes, however, it is small. Furthermore, in individual cases there can absolutely be advantages of information that justify such preference. In addition, a lot of fund managers have no home bias at all. Even if all of this decreases the problem, overall, the phenomenon of home bias can also be detected in this group of professional market players. This is an exemplary point where improvement opportunities are seen, and in this respect, we would like to contribute to a productive discussion.

3. To be good or to be better: Asset managers' attitudes towards herding[17]

3.1 Introduction

Institutional investors, such as investment funds, insurance companies and others, have become the dominant group in international financial markets during the past decades. They take advantage of comparatively low transaction costs and the opportunity of balanced portfolio diversification. Nevertheless, as empirical studies show, they mostly fail to achieve the market developments; no matter what kind of fund is managed – mutual fund or pension fund (see Malkiel, 1995, and Lakonishok et al., 1992), nor which period is considered – the postwar period or nowadays (see Jensen, 1968, Carhart, 1997, and Kempf and Griese, 2003). These results are astonishing, because asset managers are sophisticated, experienced market players who obtain valuable information about the economies and financial markets from professional research activities. So, one has to question why does their active portfolio management often not pay off? Malkiel (2003) ascribes this observation to additional expenses of active management (e.g. higher management fee) compared to passive strategies. However, another possible explanation for weaker performance is that asset managers could show inadequate working effort as they receive insufficient incentives. This paper provides evidence that some asset managers tend to strategic behavior of following the herd, which is connected with significantly less working effort than others.

Institutional investors act in a principal agent framework as agents when managing funds that belong to private or corporate clients, who can be considered as their principals. There is a conflict of interests as the clients demand attractive risk-adjusted performance, whereas the asset managers – who naturally are effort averse – are more concerned about an adequate compensation for their working effort [explicit incentive] on the one hand and an adequate de-

[17] I would like to thank Michael Melvin and Lukas Menkhoff for helpful comments as well as the German Investment and Asset Management Association 'BVI' for its very useful supporting letter. Financial support by the 'Wissenschaftsförderung der Sparkassen-Finanzgruppe e.V.', the research promotion arm of the German savings bank organization, is gratefully acknowledged.

velopment of their professional career [implicit incentive] on the other hand. Managers should care for their reputation in the labor market as it might have an effect on their remuneration later in their career (see e.g. Fama, 1980, Lazear and Rosen, 1981, and Holmström, 1999). Holmström and Ricart i Costa (1986, p. 856) find that reputational (career) concerns are more central than effort aversion in explaining incongruities in risk preferences between managers and owners or superiors. In order to make the asset managers act with best effort as desired by their principals, their investment performance is commonly assessed in relation to a benchmark – typically their peer group (see e.g. Lakonishok et al., 1992, and Maurer, 1998). But this also affords the opportunity for strategic behavior: By choosing his effort level an asset manager can "try to be good", i.e. equally good as his peers, or he can "try to be better", i.e. outperform the peer group. Respective behavioral strategies are herding for managers who (only) try to be equally good as their peers and non-herding for managers who try to be better. Here, non-herding should comprise both, anti-herding (i.e. observing the herding and doing the opposite) on the one hand and ignoring the herd on the other hand.

The opportunity for strategic behavior by means of herding has relevant macroeconomic implications. Froot et al. (1992) show that herding reduces efficiency of prices (see also Shiller, 2003). Moreover, this behavior increases the danger of contagion of financial crises (see e.g. Chari and Kehoe, 2003, Borensztein and Gelos, 2003, and Calvo and Mendoza, 2000). Due to these negative consequences it is important to know possible triggers of herd behavior.

Among other explanations (for a discussion see Bikhchandani and Sharma, 2001) reputational concerns seem to be the most important and strongest rational motives for apparently and stable herd behavior (Hirshleifer and Teoh, 2003). The theoretical background of reputational herding is ascribable to Keynes' (1936, p. 158) argumentation that "it is better for reputation to fail conventionally than to succeed unconventionally". Scharfstein and Stein (1990) follow this view and argue that an unfavorable decision affects the decision makers' reputation significantly less negatively when others made the same mistake as well. As a result, they ignore substantial private information but copy the action of the former for reputational reason. Accordingly, herding asset managers are able to "share the blame" and "hide in the herd" when their investment decisions emerge as being unprofitable (see also Devenow and Welch 1996). Additionally, Pally (1995) explains herding based on the principle of "safety in numbers". Chevalier and Ellison (1999a) analyze the investment behavior of professional asset managers and they confirm that reputational career concerns can induce herding. They find that younger managers who typically have stronger career concerns as they have a longer working life ahead deviate less from the average decision of the herd. Moreover, hire and

fire is a typical personnel policy in professional asset management. As younger managers are more at risk to be fired for bad performance than seniors, they tend to herd. Arora and Ou-Yang's (2001) empirical results confirm that the tendency to herding decreases with the manager's age. Similarly, Hong et al. (2000) as well as Lamont (2002) find that inexperienced forecasters deviate less from the consensus forecasts, but when they become older and more established they tend to make bolder forecasts to manipulate assessments of their ability.

Unfortunately, it is not only difficult to discriminate spurious from intentional herding, but particularly to identify reputational herding. The inconsistent evidence of herding (see discussion in Sias, 2004) and especially the lack of a measure of reputational herding motivates us to pursue a questionnaire survey as an alternative approach. We asked professional asset managers by questionnaire concerning their motivation and investment behavior and distinguish between decision makers who "try to be good" and those who "try to be better". By doing so, we avoid the problematic use of a proxy. This kind of method enables a systemic consideration of personal viewpoints and intentional behavior in specific situations and is therefore able to detect reputational herding. It is established as a way to analyze financial markets, being used by Shiller (1989), Blinder (2000) and Strong and Xu (2003) among others. Our survey provides evidence for the existence of reputational herd behavior. Herding managers show less working effort, focus on shorter investment horizons and prefer the use of non-fundamental information. Furthermore, we find that they are generally more risk averse, but in short-term tournament scenarios they are willing to take more risk as they apparently fear of falling out of the herd.

The remainder of the paper is structured as follows. Section 3.2 presents the methodology and design of the survey in professional asset management. Section 3.3 comprehends a discussion about different views on reputational herd behavior. In Section 3.4 we initially focus on managers' working effort, preferred sources of information and investment horizons. Then, in Section 3.5, we analyze their risk taking behavior including short-term alteration in a tournament situation. Finally, Section 3.6 concludes the paper.

3.2 Survey methodology and design

A questionnaire survey being conducted with asset managers in Germany in 2003 provides the data set for the analyses here. The survey is motivated by institutional investors' influence and role in international investment markets and focuses on the personal viewpoints, perceptions and investment behavior of professional asset managers. As we developed the short questionnaire, we had

to consider that the quality and significance of the answers given critically depend on the selection of possible questions and their correct formulation. Therefore, we discussed draft versions of the questionnaire with professional asset managers in numerous personal interviews between February and March 2003 in order to avoid misinterpretations. The interviews could contribute to specify relevant hypotheses from the economic literature and to assess their applicability for a written survey. Pretests confirmed the questionnaire's applicability. Moreover, we had to bear in mind that the recipients will be more willing to fill in the questionnaire the shorter it is.

During the period of April to June 2003 the fund management companies in Germany were repeatedly contacted to participate in the survey. The German investment association 'BVI Bundesverband Investment und Asset Management e.V.' supported our research project with a letter of recommendation to all its member firms. In total, we received 263 filled in questionnaires from professional asset managers. Sustained following up by mail, email and telephone was necessary to achieve such a large sample size. As the survey was conducted by mail as well as by email we do not report a response rate on the whole number of questionnaires the asset managers received, because a lot of asset managers forwarded the questionnaire to their colleagues by email attachment. We rather emphasize the participation rate of fund management companies which is 77.3%. In detail, we sent questionnaires to 66 member firms of the BVI with major investment segments in equities, bonds and money market, respectively and fund managers of 51 different companies participated in the survey. Strategic answers are not expected due to guaranteed anonymity of participants. With regard to that remarkable participation rate, the large data sample seems to be suitable to truthfully represent the personal viewpoints, perceptions and investment behavior of fund managers in Germany. *Table 3-1* confirms the representativeness of the collected data sample: the null hypothesis of no difference between the structure of the data set and that of the German asset management industry cannot be rejected. Bigger investment companies typically employ more asset managers and have a higher market impact than smaller ones. This higher importance is also reflected in the data set, as asset managers of bigger companies participated significantly more in the survey (see Table 3-1). Moreover, the typical personal characteristics of the surveyed asset managers are in line with the findings in current surveys in German asset management, e.g. Arnswald (2001) or Brozynski et al. (2004). For detailed information see Lütje and Menkhoff (2004).

3.3 Survey findings on reputational herding

First of all, we realize that herding is not only a theoretical problem, but definitively exists in practice. By measuring the level of institutional herding di-

rectly (without the problematic use of a proxy) the present analysis adds to the empirical literature on herding. The survey shows that institutional herding is perceived by a great majority of asset managers. Numerous interviews made sure that asset managers comprehend only intentional behavior as herding. *Figure 3-1* illustrates that 91.3% of the surveyed asset managers perceive institutional herding, since they agree with statement [A] that "herding is observable amongst professional asset managers."

Table 3-1
Comparison of the data sample with industry's structure

	Structure of the German asset management industry (by assets under management)
Structure of the data sample (by assets under management)	H_0: no difference[1)] -0.669 (0.503)
	Correlation[2)] with company size (by assets under management)
Number of answered questionnaires per company	0.678*** (0.000)

The market data is taken from on the annual report 2003 of the BVI (www.bvi.de).
[1)] The table gives the z-value of the Mann-Whitney U-Test with the p-value in parentheses.
[2)] The table gives the coefficient of the Pearson correlation with the p-value in parentheses.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Following the arguments by Chevalier and Ellison (1999a) who confirm a positive correlation between asset managers' career concerns and herd behavior, we test the following hypothesis:

H1: Asset managers believe that herding benefits the career.

Figure 3-1 also shows that only 40.1% believe that herd behavior benefits the asset manager's career, whereas 59.9% disagree to the respective statement [B]. Taking this general market view into consideration, we should rather reject *H1*. However, we have to point out that this is the aggregated view of the whole industry. Do asset managers who follow the herd themselves have a different opinion regarding the influence of herding on managers' reputation and career, respectively? To analyze this, we additionally take into account their assessment of statement [C] "I generally follow the trend." As the figure illustrates there are approximately as many asset manager that admit to follow the

trend (50.2%) as others who do not (49.8%). Why do approximately half of the asset managers tend to follow the trend? We consider their subjective view on how herding affects the asset managers' career to unveil their motivation. We find that asset managers who follow the trend significantly have a stronger belief that herding benefits their career compared to non-herding asset managers. The Spearman rank correlation in *Table 3-2* substantiates this relation. Thus, we conclude that herding is (at least partly) triggered by asset managers' career concerns, since they rather believe in beneficial effects of such investment behavior. While from the aggregated market view one should rather reject *H1*, the subjective point of view of herding asset managers, however, somewhat supports this hypothesis.

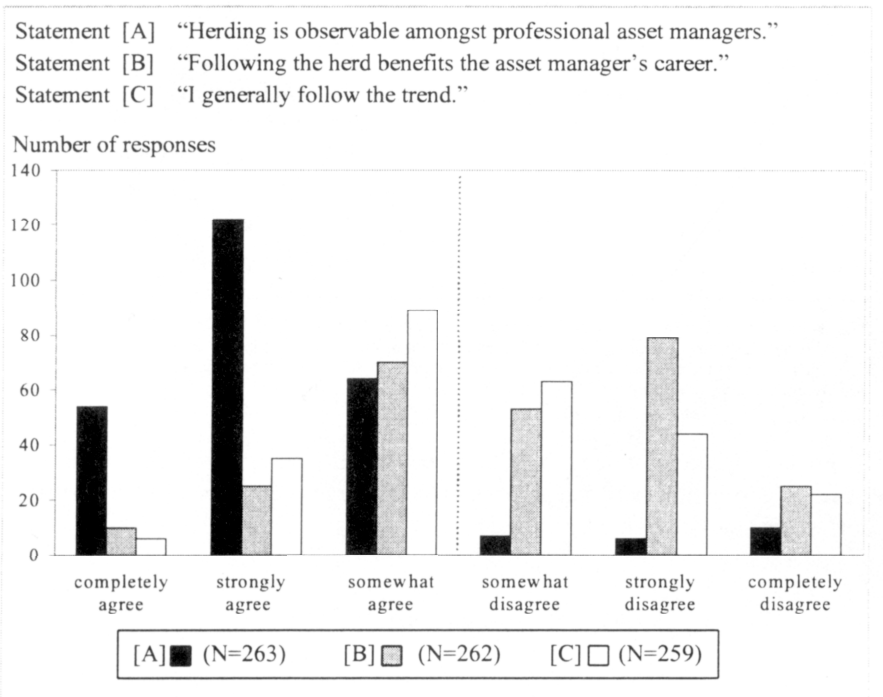

Figure 3-1: Perception of herding, career concerns and following the trend

Table 3-2
Herd behavior and career concerns

"Following the herd benefits the asset manager's career." Six answering categories from "completely agree" (coded as 1) to "completely disagree" (coded as 6).

	Share of agreement[1)]	Spearman rank correlation[2)] with following the trend
Herding benefits career	40.1%	0.276*** (0.000) [258]

[1)] The share of agreement is calculated as aggregated distribution to the answer categories 1-3.
[2)] The table gives the coefficient of the Spearman rank correlation with the p-value in parentheses and the number of responses in squared brackets.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

3.4 Herding managers' working effort, preferred information and time horizon

3.4.1 Herd behavior and working effort

Due to the principal agent problems in professional asset management there is a gap between the working effort level targeted by the asset managers and that desired by their clients. A possible and widely used mechanism to reduce the disparity is the relative performance measurement in relation to a benchmark (normally the performance of a peer group). But in this situation an asset manager faces the opportunity of strategic behavior. As a herding manager does not "try to be better" than his peers, we expect him to show less working effort than non-herding asset managers who by definition "try to be better". It seems to be plausible that non-herding asset managers show more working effort, since the wish "to be better" typically claims to be more ambitious.

H2: Herding managers show less working effort than non-herding managers.

We measure managers' working effort by their average working hours per week (being typically 46-50 hours, see *Figure 3-2*) and find that herding managers exhibit significantly less working effort than non-herding ones. The Spearman rank correlation in Table 3-3 confirms *H2*. As the asset manager's working effort cannot be observed by his clients (see Golec, 1992 p. 82) and only partly by his superiors, he has some opportunity to reduce working effort and execute hidden action. However, asset managers are predominantly evalu-

ated and performance-related paid by means of (relative) fund performance (see Gehrig et al., 2004). The latter does not necessarily reflect true management achievement (see also Starks, 1987, p.19, and Heinkel and Stoughton, 1994, p.354).

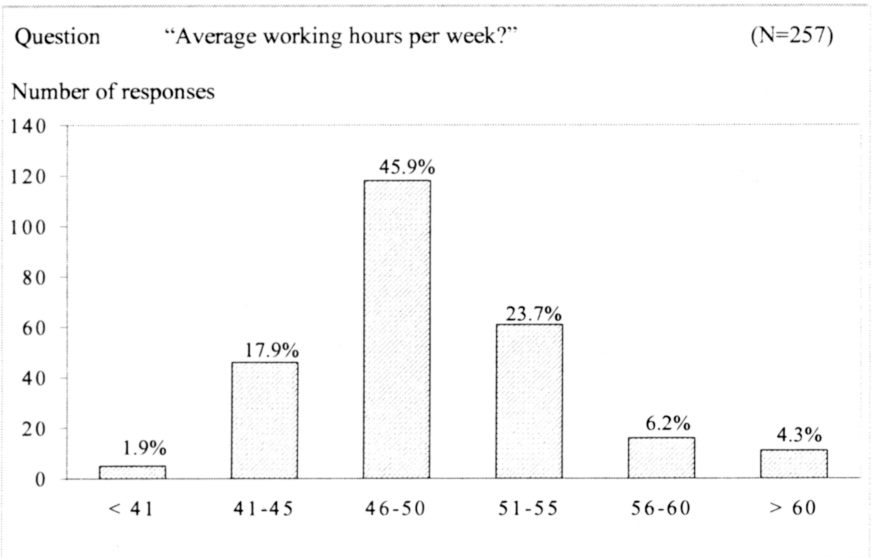

Figure 3-2: Working effort in asset management business

3.4.2 Herd behavior and use of information

After providing evidence for institutional herding in Section 3.3 we consider the information which herding managers typically use. Scharfstein and Stein (1990) conclude that decision makers ignore substantive private information they possess, because they will be more favorably evaluated if they follow the decisions of others. Therefore, we expect identified herding managers to focus on non-fundamental information – especially the investment decisions of other market players.

H3: Herding managers focus on non-fundamental information.

The analysis provides evidence that fundamentals and their discussion with colleagues are the most important sources of information for asset managers, followed by technical analysis. However, we also find that herding asset man-

agers typically base their investment decisions comparatively more on technical analysis, investment decisions of other market players and the statements of opinion leaders of the industry in relation to non-herding managers. Moreover, they ascribe significantly less importance to fundamental information and serious discussions with their colleagues. For more details see Spearman rank correlations in *Table 3-4*. In addition, the multinomial setting of an ordered probit regression discloses that following the trend is significantly driven by using technical analysis and taking into account statements of industry's opinion leaders. In contrast, using fundamental information significantly lowers trend following behavior. These findings confirm *H3*. This kind of selective use of information implies negative macroeconomic consequences as it may drive securities prices away from fundamental equilibria. In this manner, our findings support the results in Froot et al. (1992) that herding reduces efficiency of prices. Apart from that, we find that non-herding asset managers base their investment decisions especially on fundamental information and its discussion with their colleagues, whereas technical analysis, investment decisions of other market players and the statements of opinion leaders within the industry are significantly less important. This behavior would help to improve market efficiency as it drives security prices towards the fundamental equilibria. The preference for the mentioned kind of information seems to be plausible for non-herding managers who "try to be better": If you are too focused on what the other market players do and what opinion leaders say, you can at most be as good as your peers are. Non-herding asset managers who "try to be better" concentrate on fundamental facts and discuss their viewpoints with their colleagues.

Table 3-3
Herd behavior and working effort

"Average working hours per week?" Six answer categories ranging from "< 41" (coded as 1) up to "> 60" (coded as 6).

	All managers' mean answer	Spearman rank correlation[1)] with following the trend
Less working effort	46-50 hours	0.175*** (0.005) [253]

[1)] The table gives the coefficient of the Spearman rank correlation with the p-value in parentheses and the number of responses in squared brackets.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Table 3-4
Herd behavior, sources of information and investment horizon

"Please assess the following sources of information used in making investment decision." Six response categories, ranging from "highest relevance" (coded as 1) to "no relevance" (coded as 6).

"What is your personal forecasting horizon when making investment decisions?" Five response categories, ranging from "days" (coded as 1) to "years" (coded as 5).

	Share of high importance[1]	Rank correlation[2] with following the trend	Ordered probit regression[3]
Importance of information			
Fundamentals	95.1%	-0.254*** (0.000)	-0.244*** (0.001)
Technical analysis	70.7%	0.426*** (0.000)	0.260*** (0.000)
Discussion with colleagues	78.5%	-0.116* (0.063)	-0.058 (0.263)
Other market players	31.2%	0.148** (0.017)	0.024 (0.691)
Opinion leaders (Industry)	19.0%	0.194*** (0.002)	0.137** (0.043)
Opinion leaders (Economy)	43.3%	0.051 (0.413)	-0.027 (0.631)

	All managers' mean answer	Rank correlation[2] with following the trend
Shorter investment horizon	6-12 months	0.174*** (0.006)

[1] The share of high importance is calculated as aggregated distribution to the answer categories 1-3.
[2] The table gives the coefficient of the Spearman rank correlation with the p-value in parentheses. The correlation is based on 254 to 259 valid responses.
[3] The table gives beta coefficient estimates from an ordered probit regression of following the trend with the p-value in parentheses. The dependent variable "I generally follow the trend" is classified in six response categories, ranging from "completely agree" (coded as 1) to "completely disagree" (coded as 6).
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

3.4.3 Herd behavior and investment horizon

We already realized that herding managers predominantly base their investment decisions on technical analysis which is typically used for short-term forecasting horizons (see evidence in Gehrig and Menkhoff, 2003). Consequently, they are expected to have a shorter investment horizon than non-herding managers. Another explanation for this assumption is that herding managers are typically more benchmark oriented and as the fund performance will regularly be assessed in the short term (see Marsh, 1992, and Lakonishok et al., 1991) they should focus on this horizon. It seems to be plausible that asset managers tend to short term horizon: Imagine they actually possess valuable information for promising long term performance that recommends a deviation

from the current market view. Then, the resulting investment strategy is expected to be impeded by third parties who due to short term performance evaluation contradict such deviation (see Menkhoff, 2002). Baker's (1998) interview study conducted with fund managers in the United Kingdom as well as Arnswald's (2001) questionnaire survey of German fund managers provide evidence for their short term orientation.

H4: Herding managers focus on shorter investment horizons than non-herding manager.

To test the hypothesis that herding managers are even more short term oriented, we asked the asset managers what their personal forecasting horizon is when making investment decisions. We offered five response categories from "days" to "years" and calculate a mean forecasting horizon of 6-12 months. The survey also provides evidence that herding managers significantly focus more on shorter investment horizons than non-herding managers. This result in Table 3-4 confirms *H4*.

One has to question whether this orientation is in line with their clients' preferred investment horizon. In contrast to asset managers, their clients are rather long term oriented, e.g. for retirement provisions. Here the principal agent problems become obvious as the problem of performance justification induces asset managers' short term horizon. However, Marsh (1992) argues that their short term actions often reflect long term views. Furthermore, short term horizon would also appear in myopic loss aversion. This behavioral pattern is the combination of a greater sensitivity to losses than to gains and a tendency to frequent performance evaluation (see Thaler et al., 1997). Thus, in Section 3.5.2 we will discuss whether herding managers who focus on shorter investment horizon also have a stronger loss aversion.

3.5 Herding managers' risk taking behavior

3.5.1 Herd behavior and risk aversion

Herding asset managers are able to hide in the herd and to share the blame when their investment decisions emerge as being unprofitable (Scharfstein and Stein, 1990, and Devenow and Welch, 1996). Additionally, Pally (1995) explains herding based on the principle of safety in numbers. Thus, we assume herding asset manager to be more risk averse. This view is in line with the find-

ing in Gümbel (2004) that investors herd in their asset allocation, when managers are sufficiently risk averse.

H5: Herding managers are more risk averse than non-herding managers.

Asking the asset managers to self-assess their attitude towards financial risk allows us to test this hypothesis. Accordingly, we asked them to complete the following sentence: "In respect of professional investment decisions, I mostly act...". The response categories range from "very risk averse" to "little risk averse". While the survey unveils that asset managers self-assess as "medium risk averse" on average, it also provides significant evidence that herding managers regard themselves as more risk averse (see *Table 3-5*). But we have to emphasize that this self-assessment can possibly deviate from actual risk taking behavior. So, we also consider their risk taking behavior in a simulated bet: "Imagine someone offers you a bet and the odds are fifty-fifty. You will have to pay €1,000 from your personal account if you lose. What would be the minimum amount you would expect to win to lure you into accepting the bet?" According to Table 3-5 we suppose that herding managers are more risk averse as they demand a higher possible win to accept the bet. We find a positive correlation between the demanded amount and following the trend. However, this result is not statistically significant. Hence, we take a closer look on their risk taking behavior and consider behavioral biases – more precisely their loss aversion and disposition effect.

3.5.2 Herd behavior and biased risk-taking behavior

3.5.2.1 Loss aversion

According to Kahneman and Tversky's (1979) prospect theory, loss aversion implies being more sensitive to losses than to gains. This can be concluded from an S-shaped value function, being convex for losses and concave for gains. Loss aversion in terms of higher sensitivity to losses becomes obvious in the steeper slope below the reference price (typically the purchase price). Tversky and Kahneman (1992) come to the conclusion that individuals weight losses approximate 2.25 times as strongly as gains. We expect herding managers to have a higher loss aversion than non-herding ones – not only as they fear to fall out of the herd when cutting losses. Another reason is that they are more

risk averse (see evidence provided in Section 3.5.1) and Schmidt and Zank (2002) argue that the definition of loss aversion has analogies with those of risk aversion.

Table 3-5
Herd behavior and risk taking behavior

"Please classify your personal risk-taking: In respect of professional investment decisions, I mostly act..." six response categories ranging from 1 "very risk averse" up to 6 "little risk avers".

"Imagine someone offers you a bet and the odds are fifty-fifty. You will have to pay € 1,000 from your personal account if you lose. What would be the minimum amount you would expect to win to lure you into accepting the bet?"

"In case of loss positions in my portfolio I generally wait for a price rebound instead of selling those securities." Six response categories, ranging from 1 "completely agree" to 6 "completely disagree".

"I prefer to take profits instead of cutting losses when I am confronted with unexpected liquidity demands." Six response categories, ranging from 1 "completely agree" to 6 "completely disagree".

	Share of agreement[1)]	Spearman rank correlation[2)] with following the trend		
Higher risk aversion[3)]	n/a	0.156**	(0.012)	[257]
Higher minimum amount[4)]	n/a	0.074	(0.284)	[214]
Higher loss aversion	42.1%	0.296***	(0.000)	[258]
Stronger disposition effect	37.8%	0.264***	(0.000)	[258]

[1)] The share of agreement is calculated as aggregated distribution to the answer categories 1-3.
[2)] The table gives the coefficient of the Spearman rank correlation with the p-value in parentheses and the number of responses in squared brackets.
[3)] All managers' mean answer is 3.5, indicating a "medium" extent of risk aversion.
[4)] All managers' median answer is € 1,750.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

H6: Herding managers are more loss averse than non-herding managers.

The simulated bet in Section 3.5.1 shows that asset managers have a smaller loss aversion compared to non-professional individuals as considered in Tversky and Kahneman (1992). Asset managers median answer indicates that losses

are weighted (only) 1.75 times the gains.[18] The higher minimum amount demanded to accept the bet somewhat indicated a higher loss aversion of herding managers in relation to non-herding managers. To substantiate this assumption the asset managers were asked to assess the following statement: "In case of loss positions in my portfolio I generally wait for a price rebound instead of selling those securities." Even if only 42.1% of all managers agree with that statement, we find that herding managers significantly agree to a greater extent with it. In Table 3-5 the Spearman rank correlation confirms that they are indeed more loss averse and it hence supports *H6*. While loss aversion only considers the investment behavior regarding losses, the disposition effect also captures the behavior concerning profits.

3.5.2.2 Disposition effect

Shefrin and Statman (1985) define the disposition to ride losers too long (i.e. loss aversion) and to sell winners too early as disposition effect. Odean (1998) finds empirical evidence for this phenomenon. Weber and Camerer (1998) confirm the disposition effect with experiments and ascribe this behavior to people's reluctance to admit wrong investment decisions ex post. Shapira and Venezia's (2001) research provides empirical evidence that both, independent investors and professional asset managers exhibit the disposition effect, albeit it is stronger for the independent. Due to the fact that herding managers are more loss averse than non-herding managers (see evidence discussed above) we expect them to have a stronger disposition effect, too.

H7: Herding managers make investment decisions with stronger disposition effect than non-herding managers.

To test this hypothesis, we asked the asset managers to comment on the following statement: "I prefer to take profits instead of cutting losses when I am confronted with unexpected liquidity demands." It is found that only 37.8% of the surveyed managers agree to have such a disposition effect. The Spearman rank correlation provides evidence that herding managers agree significantly more with that statement (see Table 3-5). This demonstrates that they have a stronger disposition effect and hence supports *H7*.

Summing up so far, we identified different characteristics of herding versus non-herding asset managers. The multivariate analysis in *Table 3-6* unveils

[18] All other coefficients as per Kahneman and Tversky (1992).

that, among all items considered, herding is predominantly driven by a specific use of information sources and risk taking behavior: Herding managers prefer the use of technical analysis and pay less attention to fundamental information. Moreover, they assess themselves as more risk averse which also becomes obvious in their stronger loss aversion. We realized that herding managers have a significantly different risk taking behavior than non herding ones. We also realized that they tend to short term horizon (even if it is no main driver of herding as the multivariate analysis shows). In order to consider both aspects jointly, we analyze their risk taking behavior in the short term perspective in Section 3.5.3. For this purpose we simulate tournament scenarios professional asset managers typically face near the end of the period. Do herding managers possibly change their risk-taking behavior during the year?

3.5.3 Herd behavior in the tournament

In the literature there are different opinions, how and in what direction (higher or lower risk level) the risk taking behavior is influenced by performance incentives. In fact, there is an interesting discussion about the so called "tournament effect". Brown et al. (1996) argue that the tournament structure of the mutual fund industry influences the asset managers to vary the risk level of their portfolios near the end of the valuation period. Particularly, successful performing funds tend to lock in, while losing funds tend to gamble. Arora and Ou-Yang (2001) argue that the risk manipulation is definitely more influenced by this tournament effect than by manager's career concerns. The finding that past performance is negatively related with changes in risk can be ascribed to the coincidence of two circumstances. First, the incentive of asset based fees (i.e. fees in percent of assets under management) in the investment management industry makes the asset managers compete with each other for clients' assets. Second, Sirri and Tufano (1998) provide evidence that investors react asymmetrically to fund performance. They show that high performing funds receive large inflows, but underperforming funds are not equally penalized with outflows. However, Busse (2001) questions the temporal coherence with the managers' strategic year end risk alteration as tournament effect; because mutual fund performance is widely reported daily and cash flows accrue to funds throughout the year. Chevalier and Ellison (1997) confirm that underperforming funds tend to gamble to catch the market whereas funds that are a few points ahead of the benchmark tend to lock in. However, they also find that even outperforming funds tend to gamble to become a top performer, if they are not only a few points, but well ahead of the benchmark.

Table 3-6
Multivariate analysis of triggers of herd behavior

Considered items	Ordered probit regression of "I generally follow the trend"		
	Beta coefficient	p-value	Standard error
Herding benefits career	0.156**	(0.040)	0.076
Working effort	-0.032	(0.614)	0.065
Importance of information			
Fundamentals	-0.274***	(0.001)	0.085
Technical analysis	0.262***	(0.000)	0.060
Discussion with colleagues	0.009	(0.878)	0.058
Other market players	-0.050	(0.482)	0.072
Opinion leaders (industry)	0.123	(0.101)	0.075
Opinion leaders (economy)	-0.116*	(0.070)	0.064
Investment horizon	-0.037	(0.723)	0.107
Risk taking behavior			
Risk aversion (self-assessment)	0.291***	(0.000)	0.083
Requested minimum amount	$4.91e^{-7}$	(0.352)	$5.28e^{-7}$
Loss aversion	0.210***	(0.002)	0.069
Disposition effect	0.098*	(0.094)	0.058

The dependent variable "I generally follow the trend" is classified in six response categories, ranging from "completely agree" (coded as 1) to "completely disagree" (coded as 6). Stars refer to level of significance: * 10%, ** 5%, *** 1%. Marginal effects of the ordered probit regression are presented in Annex 3-1.

Busse (2001) examines the validity of the tournament hypothesis for the behavior of US mutual fund managers based on daily observations. His findings contradict prior evidence based on monthly evidence as found by Brown et al. (1996), i.e. the tournament effect disappears with daily data. He considers two possible explanations as responsible for the conflicting evidence (see also Goriaev et al., 2004). On the one hand, auto-correlation in daily fund returns biases volatility estimates used in empirical tests of the tournament hypothesis until then. On the other hand, cross-correlation in mutual fund returns invalidates the independence assumption underlying the standard statistical tests for the tournament hypothesis. He argues that the evidence in favor of the tournament hypothesis based on monthly fund returns disappears when empirically accounting for either of these effects. By doing so, he finds that fund's intra-year change in risk arises rather from changes in the volatility of common stock market risk factors as it is not related to changing factor exposures or residual risk. Thus, he concludes very little of risk alteration is attributable to deliberate actions of the fund manager.

According to this somewhat inconclusive evidence of the tournament effect, we will test the tournament hypotheses in two steps. First, we will examine whether the tournament structure of the mutual fund industry makes that asset managers tend to vary the risk level near the end of the period. If this is the case, we will take a closer look and test secondly in what direction the risk level will be changed in two different performance scenarios. Our survey approach has the advantage that we ask the asset manager directly about his preferred action. Hence, we will be able to comment on Busse's (2001) objection that very little of risk alteration is supposed to be attributable to the 'deliberate actions' of the fund manager.

H8: Asset managers don't always keep their strategy until the end of the period.

H9: Near the end of the period, outperformers tend to lock in.

H10: Near the end of the period, underperformers tend to gamble to catch up.

These hypotheses are predominantly based on the findings in Brown et al. (1996). They also refer to the evidence in Chevalier and Ellison (1997); however, we have to assume here that the fund performance is only "a few points ahead" of the benchmark, but not "well ahead" to bring *H9* in line with Chevalier and Ellison's findings. From our point of view, Chevalier and Ellison's differentiation is not practicable in a written survey as the separation between "a few points ahead" and "well ahead" would individually be interpreted, whereas the differentiation between under- and outperformance is consistently understood.

The results confirm that asset managers do not always keep their strategy until the end of the period: *Table 3-7* shows that only 51.4% of the asset managers retain their chosen investment strategy if they deviate from the benchmark (in both scenarios) near the end of the period, whereas 48.6% change their risk behavior in case they underperformed and/or outperformed the benchmark so far. This finding seems to confirm *H8* since a comparatively high share of asset managers would 'intentionally' change the chosen risk level. The result somewhat overrules Busse's (2001) objection that very little of risk alteration is attributable to the managers' deliberate actions. With regard to the conclusion that nearly half of the surveyed asset managers are willing to vary the risk level near the end of the period, we want to find out, in which direction they vary the risk level in the respective scenario. So, we consider the two scenarios separately.

Accordingly, Table 3-7 illustrates that 65.5% of all asset managers would keep their strategy when the benchmark is outperformed so far, while 33.7% would decrease the relative risk level to lock in performance and 0.8% would increase the relative risk level to become a 'top performer'. This bias towards taking less risk in case of outperformance confirms *H9*. On the other hand, when the benchmark is underperformed so far, 69.0% of all asset managers would keep their strategy, while 21.8% would decrease the relative risk level to avoid further deficits and 9.1% would increase the relative risk level to reach the benchmark. This survey finding does not confirm *H10*, because in this scenario there are more asset managers who decrease the risk level than the ones who start to gamble. However, compared to the scenario of outperformance, here we find more gamblers.

Summing up, the survey provides evidence for the behavior as expected by the tournament hypothesis when the benchmark is outperformed so far, but rather not when it is underperformed until now. How can we explain this finding? A possible reason for the unexpected behavior in the underperformance scenario could be that herding and non-herding managers behave differently and, therefore, the tournament effect might be biased. Does the separate subgroup consideration unveil different tournament behavior and for that reason explain why the tournament hypothesis should be rejected in the case of underperformance? The following analysis will confirm this speculation.

Since a herding asset manager is typically focused on what the herd does, we assume that he considers the (average) performance of the herd as his relevant "benchmark". So, we argue that a herding asset manager intends not to fall out of the herd when he underperforms his "benchmark" so far. In that case, he should tend to increase the risk level to catch up to the average performance of the herd.

H11: Herding asset managers tend to increase the risk-level near the end of the period to a larger extent than non-herding ones, if they under-performed the benchmark so far.

Regarding the underperformance scenario, there we find a strongly significant difference between the two groups, as the Mann-Whitney U-Test in Table 3-7 clearly shows. This result emphasizes and confirms the finding as already presented in the distribution of answers that herding asset managers are more willing to take more risk when they fall short. When the benchmark is underperformed so far, 64.8% of the herding asset managers would keep their strategy, while 21.9% would decrease the relative risk level to avoid further deficits and 13.3% would increase the relative risk level to reach the benchmark. Considering non-herding asset managers there are 73.8% that would keep their strategy, 22.1% that would decrease the chosen risk level but only 4.1% that

would increase the risk level. This survey finding that herding managers are about three times more willing to take more risk when they underperform the benchmark so far seems to confirm *H11*. So, the survey provides evidence that asset managers who tend to follow the herd are generally more risk averse (see Section 3.5.1), but in the tournament – i.e. near the end of the period – they are willing to take more risk. We ascribe this finding to their fear of falling out of the herd when they perform worse. The combination of herding managers' short term horizon (see evidence in Section 3.4.3) and their loss aversion (see evidence in Section 3.5.2) seems to indicate myopic loss aversion (see Thaler et al. 1997). Much more work has to be done to justify this assumption.

Table 3-7
Risk taking and herd behavior in the tournament

"Apart from any fund's restriction – Imagine your portfolio's performance differs from its benchmark near the end of the period." Chosen investment behavior in alternative performance scenarios:

Scenario [A]: "If my portfolio has *outperformed* its benchmark so far, I would:
...increase the relative risk level to become a top performer,
...decrease the relative risk level to lock in performance,
...not change my strategy."

Scenario [B]: "If my portfolio has *underperformed* its benchmark so far, I would:
...increase the relative risk level to reach the benchmark,
...decrease the relative risk level to avoid further deficits,
...not change my strategy."

	All asset managers	Herding managers	Non-herding managers	Kind of change vs. keeping strategy H_0: no difference[1)]
Keep strategy in *both* performance scenarios	51.4%	47.2%	55.7%	
Change strategy	48.6%	52.8%	44.3%	
Behavior in scenario [A]?				
Increase risk level	0.8%	0.8%	0.8%	-0.051 (0.959)
Decrease risk level	33.7%	37.5%	29.5%	-1.335 (0.182)
Keeping strategy	65.5%	61.7%	69.7%	
Behavior in scenario [B]?				
Increase risk level	9.1%	13.3%	4.1%	-2.583*** (0.010)
Decrease risk level	21.8%	21.9%	22.1%	-0.378 (0.705)
Keeping strategy	69.0%	64.8%	73.8%	

[1)] The table gives the z-value of the Mann-Whitney U-Test with the p-value in parentheses.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

3.6 Conclusions

The study examines German asset managers' attitudes towards herd behavior based on a questionnaire survey of 263 responses. It considers herding as strategic behavior to be evaluated as good as the peer group, whereas non-herding is regarded as the attempt to be better. The paper achieves the disclosure of significant differences between herding and non-herding managers in respect of working effort, preferred use of information, investment horizon and risk taking behavior.

First of all, the study provides evidence that institutional herding actually exists. It is perceived to a large extent by a great majority of asset managers. This kind of behavior is (at least partly) ascribable to asset managers' reputational and career concerns: Herding managers believe in benefits of herd behavior for their career. As their attitude is to be as good as their peers are, it is not surprising that they show less working effort than non-herding asset managers who "try to be better". Herding managers' investment behavior drives prices away from fundamental equilibriums, because they significantly use more non-fundamental information and focus on shorter investment horizons. Furthermore, they are generally more risk averse and loss averse and their investment decision is more biased by a disposition effect. Interestingly, the survey provides strong evidence that herding managers are generally more risk averse, but in the tournament they are willing to take more risk. We ascribe this finding to their fear of falling out of the herd.

Annex 3-1

Marginal effects of multivariate analysis in Table 3-6

Considered items	Marginal effects in ordered probit regression of "I generally follow the trend". Response categories:					
	Completely agree					Completely disagree
Herding benefits career	-0.062	0.031	0.027	0.003	0.000	0.000
Working effort	0.013	-0.006	-0.006	-0.001	-0.000	$-2.94e^{-6}$
Importance of information						
Fundamentals	0.109	-0.055	-0.048	-0.006	-0.001	-0.000
Technical analysis	-0.104	0.052	0.045	0.006	0.001	0.000
Discussion with colleagues	-0.004	0.002	0.002	0.000	0.000	$8.11e^{-7}$
Other market players	0.020	-0.010	-0.009	-0.001	-0.000	$-4.56e^{-6}$
Opinion leaders (Industry)	-0.049	0.025	0.021	0.003	0.000	0.000
Opinion leaders (Economy)	0.046	-0.023	-0.020	-0.003	-0.000	-0.000
Investment horizon	0.146	-0.007	-0.006	-0.001	-0.000	$-3.32e^{-6}$
Risk taking behavior						
Risk aversion (self-assessment)	-0.115	0.058	0.050	0.006	0.001	0.000
Requested minimum amount	$-1.96e^{-7}$	$9.80e^{-8}$	$8.52e^{-8}$	$1.07e^{-8}$	$1.49e^{-9}$	$4.44e^{-11}$
Loss aversion	-0.084	0.042	0.036	0.005	0.001	0.000
Disposition effect	-0.039	0.020	0.017	0.002	0.000	$8.85e^{-6}$

4. Stock price momentum: An already explained phenomenon?

4.1 Introduction

A question being of theoretical interest and practical relevance is whether future security price development is predictable by means of the past performance. This would be impossible, if financial markets were at least in weak form efficient. Then, all information about past price development would already be reflected in current prices, so that simply studying past price movements does not yield excess profits. But according to empirical findings, we have to question the validity of the efficient market hypothesis, because they provide evidence that technical analysis can be profitable.

"The trend is your friend" is a famous recommendation to trust in a continuation of price trends, instead of taking little profits today. In addition, "never catch a falling knife" presents a warning not to (re-)invest in an equity whose price shows a downwards trend. Both of these popular advices for investment activities in financial markets arise from the observation that the price of any security can move in the same direction for some time. Thus, a price momentum emerges. A lot of professionally managed investment funds embark on momentum strategies, which typically benefit from positive autocorrelation in time series of stock returns. Apart from its strategic implementation we have to question the theoretical explanation of stock price momentum here. Grinblatt and Han (2002, p. 1) state that stock price momentum is "one of the most puzzling anomalies in finance", which should be analyzed in more detail. Accordingly, this paper discusses different causes that might explain the observed price phenomenon in order to obtain a better understanding of the functioning of financial markets.

The remainder of the study proceeds in the following manner: Section 4.2 starts with a short comparison between the momentum and the contrarian strategy and discusses the realized preference for the momentum strategy. Section 4.3 describes relevant selection criteria for a successful use of momentum strategies. In Section 4.4 we search for plausible explanations of stock price momentum, whereas Section 4.4.1 is focused on behavioral approaches, Section 4.4.2 regards year end effects, Section 4.4.3 considers explanatory ap-

proaches being consistent with traditional theory and Section 4.4.4 reviews other approaches. Finally, Section 4.5 summarizes and concludes the paper.

4.2 Preferred technical strategies – momentum versus contrarian

In the practice of professional portfolio management, specific trading strategies that attempt to forecast price developments by means of past performance are often applied. In numerous academic examinations they are considered as successful. In general, there exist two alternative time series based strategies: While the cyclical momentum strategy assumes a continuation of an existing price trend, the anti-cyclical contrarian strategy awaits a trend reversal. De Bondt and Thaler (1985) find evidence that underperforming stocks ("losers") of the last 36 months will outperform past outperformers "winners" in the subsequent 3-5 years. Because of this trend reversal, long term investors should consequently embark on the contrarian strategy, which benefits from that turnaround by recommending to buy past losers and to sell past winners, i.e. to take profits. The profitability of the contrarian strategy can be explained by a commonly accepted risk based approach (see Fama and French, 1992).

But is an investment strategy, like the contrarian strategy, that is not profitable until the long term often embarked on by the market players? Do they in principal focus on long term investment horizon? First of all, we have to consider the rise of institutional investors during the past decades. Institutional investors, such as fund managers, insurance companies and others, have become the dominant players in international capital markets. These institutional investors are typically concerned about their performance evaluation, which will be reflected in their performance-linked compensation and influence the development of their professional career (see e.g. Reichling, 2002 and Maurer, 1998). With regard to principal-agent-problems, we have to bear in mind that private and corporate sponsors typically demand an account of their investments' return at regular short term intervals. Therefore, interim performance reports are usually published every quarter (Arnswald, 2001, and Lakonishok et al., 1991). Professional asset managers accordingly face incentives to embark on an investment strategy being superior in the short and medium term in order to get a better performance evaluation. Even if the contrarian strategy is more profitable in longer investment periods of about 3-5 years, Jegadeesh and Titman (1993) show that the momentum strategy dominates it within short and medium term investment periods up to 12 months. So, it is not surprising at all that the majority of professionally managed investment funds embarks on momentum strategies. Grinblatt et al. (1995) find empirical evidence in a sample of 10 years of observation that more than ¾ of all US mutual funds they considered are managed according to the momentum strategy. They find that these funds outperform portfolios that embark on other strategies on average. Summing up,

we have to capture that principal-agent-problems in fiduciary asset management can lead to a reduction of the theoretically reasonable investment horizon (Menkhoff, 2001). This explains the common preference for the momentum strategy.

The results in Jegadeesh and Titman (1993) show that past winners continue to outperform past losers in medium term up to 12 months, i.e. existing trends remain during that period. The momentum strategy can take advantage of this phenomenon by purchasing past outperformers and selling past underperformers, i.e. cutting losses. Jegadeesh and Titman (1993) calculate average momentum returns of 1% per month. This finding could be confirmed in subsequent momentum analyses. For instance, Rouwenhorst (1998), August et al. (2000) and Jegadeesh and Titman (2001) find average momentum returns of 1%, 1.07% and 1.23% per month, respectively. For more details see *Table 4-1*. While Lesmond et al. (2004) find that trading costs are potentially able to eliminate momentum returns, Korajczyk and Sadka (2004) uncover alternative momentum strategies that are profitable even after controlling for costs. So, it is interesting to know how momentum returns can be generated. What criteria have to be considered?

Table 4-1
Empirical evidence of momentum returns (selected studies)

	Jegadeesh and Titman (1993)	Rouwenhorst (1998)	August et al. (2000)	Jegadeesh and Titman (2001)
Observation Period	1965-1989	1980-1995	1973-1997	1965-1998
Markets	NSYE, AMEX	12 European countries	German Market	NYSE, AMEX, NASDAQ
Momentum Return	1% p.m.	1% p.m.	1.07% p.m.	1.23% p.m.

4.3 Selection criteria for successful momentum strategies

The already mentioned empirical studies of stock price momentum have in common, that they analyze the performance of price-based momentum strategies, i.e. the selection of stocks exclusively depends on the price development of single securities. These strategies consider a stock ranking on basis of their returns during a defined formation period, purchasing high-ranking stocks and selling low-ranking ones. Jegadeesh and Titman (2001) state that the profitability of price-based momentum strategies is commonly accepted now, because it

could be confirmed not only in a lot of empirical studies, but also in out-of-sample tests.

However, the price development is not the only criterion for a successful selection of stocks to embark on momentum strategies. So-called 'characteristics momentum strategies' consider other firm specific characteristics to discover promising investments. Following the theoretical model in Berk et al. (1999), Chen (2003) performs a partition by firm characteristics such as company size, book-to-market value relation, and dividend yield within the American stock market from 1963 to 1997. Characteristics momentum strategies base on buying stocks with characteristics being persistently 'hot' and selling stock with characteristics that are persistently 'cold'. Chen (2003) finds empirical evidence that this strategy yields 0.78% per month.

In contrast to momentum strategies that consider the price development or other characteristics of single stocks only, industry momentum strategies focus on the development of the whole industry. That means even an underperforming stock will be bought if it belongs to an outperforming industry. Moskowitz and Grinblatt (1999) analyze the American stock market from 1963 to 1995 and calculate industry momentum returns of approx. 5-6% p.a. being robust to controlling for individual momentum returns and the three factors of the Fama and French (1993) model (see Section 4.4.3).

4.4 Explanatory approaches of stock price momentum

4.4.1 Behavioral approaches

With regard to the profits of the momentum strategy we have to question from a theoretical point of view, why prices move in trends instead of e.g. following a random walk. That is what would be expected if capital markets were efficient in weak form according to Fama (1970). In the literature observed price trends are often explained with specific behavioral patterns of market participants. Interestingly, we find opposing argumentations by different authors. Whereas Jegadeesh and Titman (1993), Chan et al. (1996), Barberis et al. (1998) and Hong and Stein (1999) explain price momentum with an underreaction of market participants, De Long et al. (1990) and Daniel et al. (1998) argue that overreaction of them induces price trends. This paper explains the phenomenon of price momentum with a combined effect of under- and overreaction of market participants, because according to Fama (1998) both behavioral patterns appear equally often. Moreover, Lee and Swaminathan (2000) argue that medium term underreaction and long term overreaction are two elements of the same continuous process by which prices implement new information.

Behavioral finance is a relatively new field of research trying to explain price movements with specific investment behavior of financial market players. In this framework new information becomes commonly known slowly, instead of being immediately reflected in the prices. Consequently, market players possess different levels of knowledge when making investment decisions, so fundamental facts will be priced insufficiently at first. This occurrence is called underreaction effect. It leads to a continuation of a share price increase after good news until all market participants received and implemented the information (see *Figure 4-1*). Furthermore, Hong et al. (2000a) find that the extent of underreaction also depends on the coverage of analysts who receive company news and publish commented analyses and investment recommendations. The weaker the analyst coverage of a listed company is, the stronger the momentum effect will typically be. It can be expected that information about small caps will generally be bandied more slowly, because the majority of analysts focuses on companies with a larger market capitalization. Bhushan (1989) confirms this assumption by finding a positive correlation between analyst coverage and company size. Summing up, the underreaction effect, and therefore the success of the momentum strategy will be the higher, the smaller the company is (size effect) as Hong et al., (2000a) argue. Additionally, they find a stronger underreaction effect in the price movements of loser stocks than of winner stocks, if the companies are not covered by financial analysts. This can be explained by the fact that the management of a company without analysts' coverage has to provide company information by itself. The management is as expected more willing to do so if the news is good, so that it will typically take a longer time until negative company developments are commonly known and completely reflected in the security prices.

In addition to the underreaction effect, the overreaction effect leads to a prolongation of the price trend (see De Bondt and Thaler, 1985). Attracted by observed price increase, further market players start to invest, even if they have not received any fundamental information about the company. This so-called 'feedback trading' is a special form of herd behavior, which appears when investors react to delayed information (Nofsinger and Sias, 1999). It typically triggers an overshooting of stock prices beyond the fundamental equilibria. The momentum strategy will be profitable as long as the feedback trading persists. But once the effect loses its impact, we normally observe trend reversals, i.e. the prices return to their fundamental equilibria (see Figure 4-1). Starting from this phase of price movement, which is typically called mean reversion (see e.g. Lee and Swaminathan, 2000), it would be advisable to change the investment strategy and to embark on the contrarian strategy, which recommends to take profits by selling past winners. Such a variation in strategies is documented by Badrinath and Wahal (2002). The empirical finding in Jegadeesh and Titman (2001) of a continuously increasing performance of the momentum portfolio in the first 12 month after portfolio formation, and a negative per-

formance from 13th to 60th month is consistent with the presented behavioral models of under- and overreaction.

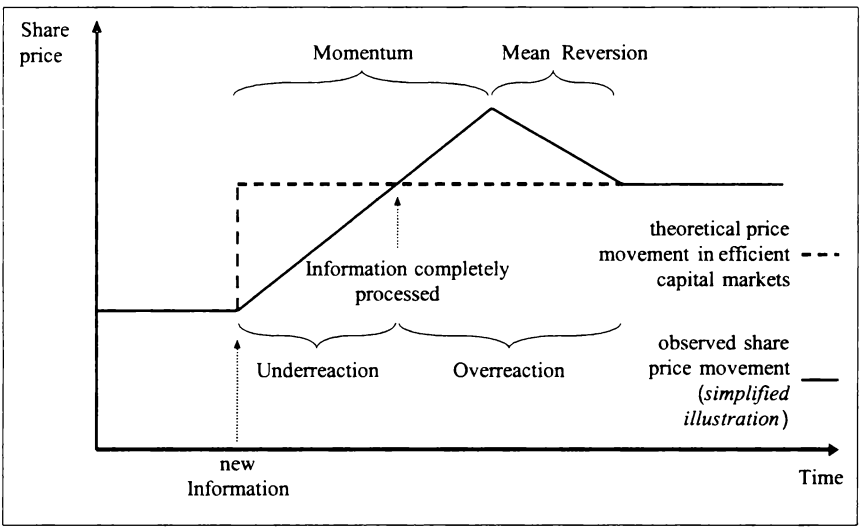

Figure 4-1: Effects of under- and overreaction

In summary, under- and overreaction of market participants seem to be a coherent explanation of short and medium term price momentum. The performance of investment funds, which has an important impact on the asset managers' remuneration, is typically evaluated within the same time horizon. Therefore, it is more than comprehensible that a lot of asset managers prefer the momentum strategy rather than other strategies (see evidence for the US investment industry in Grinblatt et al., 1995). Even if the questionnaire survey of German fund managers by Brozynski et al. (2004) confirms that most of them (91%) embark on the momentum strategy to some extent, it is also found that only 11% of the fund managers explicitly prefer this strategy compared to other strategies, like buy-&hold and contrarian strategies.

In addition, Grinblatt et al. (1995) also find a certain asymmetry in the investment behavior. While they observe a systematic purchase of past winners, past loser are not consequently sold. Further experimental and empirical analyses, e.g. by Odean (1998) or Weber and Camerer (1998), confirm that a lot of investors show aversion to realize losses. Weber and Camerer (1998) explain this behavioral anomaly with the assumption that market participants simply wait for price recovery instead of admitting that their ex ante made investment decision were ex post wrong. Shefrin and Statman (1985) call the behavioral phenomenon to sell winners too early and to ride losers too long the 'disposi-

tion effect', which leads to biased expected returns and equilibrium prices. Grinblatt and Han (2002) show, that this irrational effect induces an underreaction to information, and therefore a spread between the market price and the fundamental value. As a result, the share price of past losers [past winners] tends to be above [below] the fundamental equilibrium. Due to market mechanisms, the share price will converge to its fundamental equilibrium now, so the prices of losers will fall, while prices of winners will increase. Regarding resulting trend formation, the disposition effect seems to provide another possible explanation of the momentum in stock prices. In contrast to Grinblatt and Han (2002), the model developed by Strobl (2003), however, suggests that both, the disposition effect and momentum can even arise in a world full of rational decision makers due to asymmetric information between the investors. He finds no causal relation between the disposition effect and stock price momentum, as the first is generally consistent with both, price continuations and reversals.

4.4.2 Year end effects as momentum explanation

Apart from strong evidence of the disposition effect in Odean (1998), it becomes also obvious there that the investment taxation has an important impact on individual investors' investment decisions. Odean (1998) concludes that the effect of tax-loss-selling more than countervails the disposition effect at year end: In contrast to the otherwise common behavior, non-institutional investors are willing to cut losses in December in order to calculate them against gains from speculation, or to carry them forward to subsequent financial years. Grinblatt and Moskowitz (2004) find that the momentum strategy is most profitable at year end, which can essentially be ascribed to tax-loss-selling. They observe a fall in prices of loser stocks due to tax induced sales pressure. Grinblatt and Keloharju (2002) perform an analysis of the Finnish stock market and confirm that stocks being sold at year end will often be repurchased at the beginning of the following year, which leads to price recovery in January. This observation is called January effect.

In addition, professional asset managers are also in favor of selling loser stocks at year end to improve the quality of their portfolio. This self marketing method is also referred to as window dressing, which can be explained by the information asymmetry between the asset manager and his/her principals, i.e. the investors on the one hand and the investment company on the other hand (see Lakonishok at al., 1991, 1992). In general, sponsors only analyze the portfolio structure by means of due date reports and the investment company is also limited in monitoring its employees. Consequently, asset managers can take the opportunity by (hardly noticed) getting rid of poorly performing stocks with the intent to get a better performance evaluation afterwards. Apart from quar-

terly appraisals, Lakonishok et al. (1991) underline that the major performance assessment takes place at the end of the financial year, so that the outcome of window dressing coincide with tax-loss-selling.

4.4.3 Momentum explanations consistent with traditional theory

In his study Lewellen (2002) discriminates crosscorrelated momentum (i.e. winner stocks carry on outperforming loser stocks) on the one hand, from momentum in terms of positive autocorrelations (i.e. a continuation of the own price trend). He comes to the conclusion that models of behavioral finance are not suitable for explaining the success of the momentum strategy, because momentum can also appear with negative autocorrelation in stock prices, in case that investors, for instance, underreact to portfolio specific information, but overreact to macroeconomic developments. Lewellen (2002) explains the apparent success of the momentum strategy with excess covariance of the considered stocks, i.e. their share prices covary more than their dividends. Lewellen illustrates his assumption by means of two models. In the first one, excess covariance is ascribed to the observation that investors falsely believe company specific news also imply information about other listed companies. Accordingly, their stocks are purchased [or sold] as well, so that the stock prices move in the same direction, but without respective fundamental reason. In the second model, he explains excess covariance in stock prices with fluctuations of market risk premiums. The performance spread between winner and loser stocks (so-called lead-lag-effect) can exceed negative autocorrelations in stock prices to that effect that winners still outperform losers and, thus, positive momentum returns can be realized. Even if Lewellen's (2002) conclusions seem to be contradicting to behavioral models of stock price momentum on first sight, Chen and Hong (2002) show that his findings can basically be consistent with underreaction-based explanations.

The Fama and French three-factor model fails to explain the profitability of momentum strategies by means of *(i)* the beta coefficient, *(ii)* the size effect and *(iii)* the book-to-market effect[19], respectively (see Fama and French, 1993 and 1996). Hence, Chordia and Shivakumar (2002) analyze the possible influence of macro factors on momentum payoffs. Their research provides strong evidence that intertemporal variations in macroeconomic factors can explain momentum returns in the United States. However, Cooper et al. (2004) criticize the explanatory power of this multifactor macroeconomic model as it is not robust to adjustments for market frictions, like e.g. controls for highly illiquid se-

[19] The latter factor *(iii)* means the positive relation between the book-value-to-market-value ratio and the stock return.

curities or skipping months between formation and trading periods. They consider the relevance of respective market state (bull vs. bear market) and argue that momentum profits are rather predictable by means of lagged markets returns.

In a related approach, Ang et al. (2001) consider a possible relation between the success of the momentum strategy and the downside risk. According to the authors' definition, this means the risk that a stock's return is highly correlated with the market development in bear markets. In view of that, they consider stocks with higher downside risk having higher risk premiums and, therefore, higher expected returns than explainable with the Fama and French three-factor model. It becomes obvious that the profitability of the momentum strategy can partly be explained as compensation for taking higher downside risk. Consequently, asset managers face incentives to accept higher downside risk, because they expect higher profits from the momentum strategy compensating the risk. But the asymmetric distribution of risk will not be in line with the intention of the sponsors, whose investments are at stake. Here, typical principal-agent-conflicts between asset managers and sponsors appear. The downside risk approach to explain stock price momentum is in line with traditional theory as it considers compensation for a particular risk factor. However, it is also compatible with behavioral approaches as it considers specific risk taking behavior.

The empirical findings in Griffin et al. (2003) are not only opposed to a multifactor macroeconomic model (as presented by Chordia and Shivakumar, 2002), but also against models based on market states: On the one hand, they confirm the existence of large momentum profits in portfolios, but find only weak co-movements among 40 countries under study on the other hand. Griffin et al. (2003) show that global momentum forecasts according to Chordia and Shivakumar's (2002) model are unrelated to actually observed momentum profits and, thus, seem to be limited to the United States. If macro risks and/or market states drive momentum, this seems to be a country specific phenomenon.

Furthermore, Conrad and Kaul (1998) argue that stock prices follow a random walk with drift and so the success of the momentum strategy can be explained by the finding that the drifts are stock specific and temporarily stable. Price development forecasts are not possible in respect of random walk, but based on the specific, constant drift component. So, winner stocks of the formation period will continue to outperform loser stocks, because they permanently possess higher drifts. Thus, it would on average be possible to generate profits with the momentum strategy, even if the expected returns remain temporally stable (Jegadeesh and Titman, 2001). However, Jegadeesh and Titman (2002) point out that the findings in Conrad and Kaul (1998) are biased by a too small sample. They rather show that the drift component of the expected re-

turn has little explanatory power regarding the profitability of the momentum strategy, when the analysis is unbiased – the empirical results in Jegadeesh and Titman (2001) clearly reject the Conrad and Kaul (1998) hypothesis.

4.4.4 Other explanations of momentum

In contrast to momentum strategies that consider single stocks only, industry momentum strategies focus on the development of the whole industry. That means even an underperforming stock will be bought if it belongs to an outperforming industry. Moskowitz and Grinblatt (1999) document a strong and robust industry momentum in specific industries contributing substantially to the success of the momentum strategy in these industries. Due to the finding that the momentum strategy loses its profitability when controlling for the so-called industry effect, the authors conclude that the industry effect is able to explain stock price momentum. Hou (2003) ascribes this finding to slow diffusion of common information within these industries. By analyzing the German CDAX over 30 years, Menkhoff and Schmeling (2004) discover that industry momentum strategies are profitable up to 24 months, i.e. quite longer than regarding individual stocks (mostly up to 12 month; see e.g. Jegadeesh and Titman, 1993). The return patterns in Menkhoff and Schmeling (2004) are accordable with under- and overreaction. However, the explanatory power of the industry effect for price momentum has been questioned in a lot of other studies. Firstly, Grundy and Martin (2001) argue that the industry effect is no principal cause of the momentum phenomenon, because the effect mainly occurs in the first month after the formation period.[20] If the performance ranking of the stocks would base on an investment period starting after that month, the momentum strategy in a random industry (adjusted regarding the formation period) would not be profitable anymore. Secondly, Asness et al. (2001) discriminate between inner industry effects and across industries effects. Apart from the fact that both effects contribute to the medium term success of the momentum strategy, in the first month of investment they work the opposite way. Regarding the results in Grundy and Martin (2001) as well as Asness et al. (2001) it becomes obvious that the relation between industry momentum and stock price momentum is not stable over time. Furthermore, Lee and Swaminathan (2000) illustrate that adjustments for industry momentum, and therefore possible industry effects, have no implication on the trading volume. But, by means of the latter, it should be possible to receive information about the extent and persistence of the price momentum. In view of the above, one has to question the explanatory power of the industry effect for stock price momentum.

[20] In contrast, Menkhoff and Schmeling (2004) find that the extent of the industry effect in Germany increases over several months.

According to Lee and Swaminathan's (2000) view, we should have a closer look at the meaning of trading volume, because there exist opposing opinions, how to interpret the trading volume at international financial markets with regard to future price developments. On the one hand, Conrad et al. (1994) are of the opinion that higher trading volumes provide hints at a forthcoming trend reversal in future price development, whereas lower trading activity leads to continuing price momentum. These findings are in line with the theoretical prediction in Campbell et al. (1993). On the other hand, Lee and Swaminathan (2000), Chan et al. (2000) as well as Glaser and Weber (2003) come to the opposing result that increasing trading volumes induce higher momentum returns. This positive relation between trading volume and price trends is consistent with the theory of herd behavior, in which investors follow the trend in buying and selling securities. However, while Conrad et al. (1994) focus on individual US-American securities, Chan et al. (2000) consider 17 international stock indices from North America (2), Europe (6) and Asia Pacific (9). Moreover, the considered period in Chan et al. (2000) exceeds the one in Conrad et al. (1994) more than twofold, i.e. 15½ years versus 7 years. We have to bear these differences in mind, when talking about the apparent contradiction of views. Thus, the relation between trading volume and future price development depends on the considered sample of respective capital markets and securities (see Chan et al., 2000).

4.5 Conclusions

All in all, we have to conclude that stock price momentum can in principal be interpreted with a lot of different explanatory approaches (see *Figure 4-2*). The relatively young research field of behavioral finance, explaining momentum with behavioral patterns of financial market players, provides an important contribution to it. Under- and overreaction effects complement each other to a plausible explanation of that price phenomenon. On the one hand, the disposition effect describes an aversion against the realization of loss positions. But, on the other hand, market participants face incentives to sell loss positions because of tax reasons (tax-loss-selling by individual investors) or in order to improve the portfolio quality (window dressing by institutional investors). The explanatory approach assuming that stock prices do follow a random walk with drift could not be confirmed in following empirical work. Moreover, there is no consensus regarding the explanatory power of the industry effect or trading volume regarding momentum. So, there are the new approaches trying to explain stock price momentum with excess covariance and downside risk, respectively. As alternative to the behavioral approaches, they are line with the traditional capital market theory.

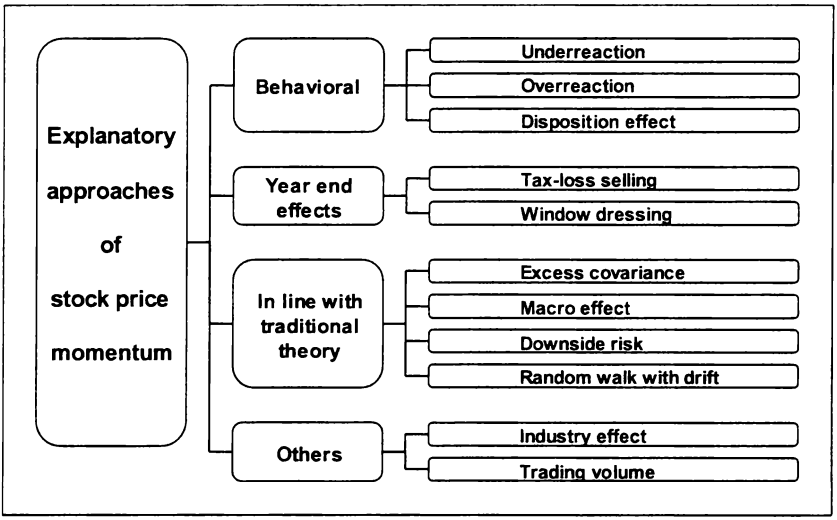

Figure 4-2: Overview – explanatory approaches of stock price momentum

5. Incentives and fund managers' behavior: Trans-atlantic evidence[21]

5.1 Introduction

With the growing importance of the fund management industry in global capital markets the role of investment funds keeps increasingly attracting public interest. Especially in periods of crises it has become a popular sport to blame fund managers for not having reacted in time, or even for being responsible of generating the crises in the first place. Have fund managers irresponsibly invested in dot.com stocks, while it seemed so evident that the bubble had to burst at some point, or have fund managers even started the bubble? While it is easy to point to fund managers as highly paid but unlucky or even incompetent investors in periods of crises, their actual behavior is not well understood so far. In public opinion this problem is compounded by the industry practice to reward fund managers by bonus payments. Especially in Europe, bonus payments are widely regarded as an invitation to gambling (see e.g. Davanzo and Nesbitt, 1987, Kritzman, 1987, and Grinblatt and Titman, 1989; as well as Elton et al., 2003 for specific incentive fees). In case the gamble is successful the fund manager earns high payments, while the financial risk of bad outcomes remains entirely with the investors.[22] To what extent is this position actually justified? How do fund managers react to bonus payments in the real world? Do they take overly risky positions in order to increase bonus payments? Or does the opposite obtain, i.e. do bonus payments induce a higher orientation towards economic fundamentals in order to improve portfolio performance, and, thus, enhance bonus payments? Ultimately, how do bonus payments effect market efficiency?

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[21] I would like to thank my co-authors Thomas P. Gehrig and Lukas Menkhoff as well as the German Investment Association BVI for its very useful supporting letter. Financial support by the VolkswagenStiftung is gratefully acknowledged.

[22] Thus, Ou-Yang (2003) claims symmetric compensation schemes in fund management, i.e. a fixed fee in relation to assets under management, plus a bonus or a penalty depending on relative performance compared to a benchmark (see also Starks, 1987, Grinblatt and Titman, 1989, and Golec, 1992). Moreover, Ou-Yang (2003) recommends an "active index" as adjustable benchmark with a flexible construction over time.

Due to data limitations the literature so far provides very limited answers. Since investment strategies and managers' individual payment contracts are highly confidential information it is difficult for outside researchers to directly observe the incentive effects of bonus payments. In fact, Chevalier and Ellison (1999a) provide the only prior analysis with individual performance data for managers regarding the respective investment fund they are responsible for.[23] In this paper we take an indirect approach based on a questionnaire survey sent out to numerous investment funds in the United States, Germany and Switzerland. This indirect approach allows us to solicit information about the effects of bonus payments on individuals conduct without requiring the respondents to provide confidential information such as the personal contract details. Moreover, we can analyze whether the role of boni is the same in countries that differ widely in their financial and pension systems.

Our analysis finds that indeed incentives do influence behavior in several dimensions and that their sizes are quite different across the two sides of the Atlantic. While average bonus payments of fund managers are about 180-190 percent of base salary in the US, they are roughly around 30-40 percent in Continental Europe. Maximal bonus payments for senior European fund managers are well below the corresponding entry levels for junior US managers. In line with the incentive literature bonus payments increase with seniority, both, in the US and Europe.

Moreover we establish that bonus payments seem to generally stimulate working effort (in both regions). However, there is no evidence that bonus payments affect risk taking, neither within the US, nor within Europe. In fact, our risk measures are completely uncorrelated with bonus payments in each region. Nevertheless, US fund managers are generally far more willing to exploit their maximal allowable discretion with respect to tracking errors, while European fund managers stay well inside the allowable band. This difference maybe related to the fact that bonus payments are considerably larger in the US relative to Europe.

Finally, we find that bonus payments tend to reduce the willingness of fund managers to follow opinion leaders and increase their inclination to more fundamentally oriented investment strategies.

The paper is organized as follows: Section 5.2 discusses the importance of explicit and implicit incentives in fund management. Section 5.3 describes data. Section 5.4 compares trans-atlantic bonus payment schemes. After consideration of institutional drivers of high bonus payment in Section 5.5, its in-

[23] Their focus is on career concerns within organizations as an incentive device. They cannot analyze determinants of bonus payments across firms.

terdependence with working effort is analyzed in Section 5.6 Then, the correlation between bonus and risk-taking as well as opportunistic behavior will be discussed in Section 5.7 and 5.8, respectively. Section 5.9 concludes the paper.

5.2 Incentives in the fund management industry

The questionnaire design builds on the state of the current literature. Due to the data limitations mentioned above most work on the fund management literature is of a theoretical nature and relates to the various incentive mechanisms in place. These are either explicit contractual provisions such as performance related bonus payments or indirect implicit mechanisms such as career concerns within a company (Zwiebel, 1995, Chevalier and Ellison, 1999a) or the labor market for fund managers at large (Fama, 1980, Holmström, 1999). The market mechanism builds on the idea that managers care for their reputation in order to solicit outside offers. Thus, they should have incentives to build up a reputation of aligning investment strategies with their customers' interests.

Career concerns tend to align managers' interest with investors' interest especially at an early stage in the career. However, as managers advance in the organization these implicit incentives decrease with age and experience. Accordingly, Gibbons and Murphy (1992) argue that in an optimal financial arrangement explicit performance-related incentives should substitute for implicit (career) incentives increasingly as fund managers advance in their career. In other words, explicit bonus payments should increase with the manager's position within the organization.

Similarly, the labor market tightens towards the higher levels of experience and responsibility, which reduces outside options and, thus, the implicit incentives to fund managers offered by the labor market. This argument, however, requires that base salary does not increase too steeply for higher qualification levels.

Since neither base salaries, nor bonus payments are widely publicized, it is not surprising to see that mainly career concerns within an organization have been scrutinized so far. Chevalier and Ellison (1997) discover some indirect evidence on risk taking incentives. In particular, they find that US fund managers seem to adjust their portfolios towards the end of the calendar year.

Dow and Gorton (1997) argue that fund managers might act on private information. However, since often they are not likely of having access to privileged information they should not trade often. This poses a problem since investors cannot distinguish the two cases in which managers do not trade because of their information or because they are simply not exerting any effort. Hence, Dow and Gorton suggest that uninformative noise trading – so-called

churning – may be a useful way to communicate that fund managers may want to "actively doing nothing" which can conceivably be in the investors' interest. In the presence of transaction costs this theory helps to explain why mutual funds typically tend to underperform the index by a few percentage points. Moreover, this theory explains the relatively high amount of trading volume, which can hardly be explained by fundamentals alone.

Herding is another reason that could affect fund managers behavior. By following the observed behavior of other managers they might free-ride from the information of others and could, thus, try to avoid costly acquisition – possibly even duplication – of private information (Lakonishok et al., 1992a, Grinblatt et al., 1995). Fund managers might have strong incentives to herd, if their incentives schemes punish them harshly for relatively bad performance while smaller deviations are sanctioned minimally. With such incentives in place, and absent further private information, fund managers would like to approximate closely the relevant mean by following the trend.

Finally, psychological patterns might dominate fund managers trading strategies. Again relative loss aversion will generate strong incentives to conform with the mean, and thus to herd. Also, if used widely, technical analysis could be considered as a coordination device helping to align mean behavior.

5.3 Data

This study is based on a questionnaire survey being conducted with fund managers in the United States, Germany and Switzerland in 2003/04. In this section we present information about the questionnaire design, pretests and the process of data collection.

5.3.1 Questionnaire design and pretests

The questionnaire was designed to provide personal information about respondents' characteristics such as position, education, age and risk attitudes, about respondents' views on the management industry, and about their personal investment strategies. In order to provide incentives to respond we developed a rather short questionnaire and avoided to ask moderately confidential information. Most conduct questions were asked in a hypothetical setting.

Since the quality and significance of the answers does not only depend on a suitable selection of questions, but also on their correct formulation, we discussed draft versions of the questionnaire with professional asset managers in numerous personal interviews in each country in order to avoid misinterpretations. Pretests finally confirmed the questionnaire's applicability.

During the period of April to August 2003 the fund management companies in Germany and Switzerland were contacted. The German investment and asset management association 'BVI' supported our research with a letter of recommendation to all its member firms. Thereafter, from September 2003 to February 2004, we collected questionnaires from fund managers in the United States.

5.3.2 Participation rate and responses

In total, we received 325 questionnaires from professional fund managers that are useful for the analysis of incentives. It comprises 121 questionnaires from the United States, 173 from Germany and 31 from Switzerland.

We were able to persuade fund managers to act as multipliers by forwarding the questionnaire to their colleagues and ask for participation. Hence, we cannot report a response rate regarding the number of sent out questionnaires. We rather would like to point out the high participation rate of 36.0% of investment companies.[24] In detail, we sent our questionnaires to the top 250 US firms ranked by worldwide assets under management and we received response from fund managers of 68 different firms (participation rate of US firms: 27.2%). In Germany we sent questionnaires to 66 member firms of the BVI with major investment segments in equities and bonds, respectively, and fund managers of 50 different companies participated in the survey (participation rate of German firms: 75.8%). The high participation rate of German companies is also attributable to the letter of recommendation by the 'BVI'. In Switzerland 18 of active 62 member firms of the 'Swiss Funds Association' with major investment segments in equities and bonds, respectively participated (participation rate of Swiss firms: 29.0%). Strategic answers are not expected due to guaranteed anonymity of participants.

The representativeness of the collected data sample in each country is confirmed by *Table 5-1*: the null hypothesis of no difference between the structure of the data set and that of the national asset management industry cannot be rejected. Bigger investment companies typically employ more asset managers and have a higher market impact than smaller ones. This higher importance is also reflected in the data set, as asset managers of bigger companies participated significantly more in the survey (see Table 5-1).

[24] This is a good result compared to the response rates in e.g. Shiller and Pound (1989) and Bodnar et al. (1996) of 45% and 18%, respectively.

Table 5-1
Comparison of the data sample with industry's structure

	Structure of the asset management industry in relation to respective national sample (by assets under management)		
	UNITED STATES	GERMANY	SWITZERLAND[3)]
H_0: no difference[1)]	-0.753 (0.451)	-0.930 (0.352)	-0.385 (0.700)
	Correlation[2)] with company size (by assets under management)		
Number of answered questionnaires per company	UNITED STATES	GERMANY	SWITZERLAND[3)]
	0.260** (0.040)	0.627*** (0.000)	0.905*** (0.000)

The market data is taken from on the 'Pensions & Investments' money managers directory 2003 (www.pionline.com). the annual report 2003 of the BVI (www.bvi.de). and the 'TIF' report of the SWX Swiss Exchange in cooperation with the SFA Swiss Funds Association (www.swx.com), respectively.
1) The table gives the z-value of the Mann-Whitney U-Test with the p-value in parentheses.
2) The table gives the coefficient of the Pearson correlation with the p-value in parentheses.
3) Proxied by number of mutual funds offered.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

The *Tables 5-2a* to *5-2c* present the typical personal characteristics of the surveyed asset managers clustered by country. As common result for all regions we find that fund managers are typically male and married. They predominantly hold a graduate degree, attained senior positions in asset management and most of them are responsible for equity funds. Apart from these similarities, the survey results also disclose international differences: We find that in the United States relatively more decision makers in leading positions participated in the survey. Even if the majority of all respondents are in senior management positions, in the United States the participation rate of Chief Investment Officers and Chief Executive Officers is approximately three times higher than in Germany. Hence, it is not surprising that US respondents are older and comparatively more experienced in asset management. The average age of US managers is approximately 40 years, whereas German and Swiss managers are about 33 and 36 years old, respectively. While US managers possess professional experience of around 11 years, the Germans are only 6 years in business on average. Swiss managers are in between again with about 9 years of experience. The younger age structure in Germany is in line with the development of the asset management industry there. As the number of mutual funds in Germany doubled in the past 6 years, a lot of portfolio managers were additionally recruited.[25] Moreover, in the United States as well as in Germany

the fund managers are predominantly responsible for special funds, whereas Swiss professionals manage mutual funds to a larger extent.

The choice of target countries for the written survey also reflects the importance of the three investment management markets and its big players. Regarding the worldwide distribution of investment fund assets the United States and Europe dominate the global market. As of ultimo 2003 the United States possess a market share of 53.1%, followed by Europe with 33.5%.[26] In Europe we focused on the German and Swiss market as these markets are home of important global players: Among the global top 20 firm ranked by worldwide assets under management we find Deutsche Asset Management (USD 681.8 bn) and Allianz Dresdner Asset Management (USD 515.2 bn) with German roots as well as UBS Global Asset Management (USD 475 bn) and Credit Suisse Asset Management (USD 312.1 bn) originally from Switzerland.[27]

Table 5-2a
Fund managers' personal characteristics [United States]

Country	UNITED STATES					N=122
Gender / Marital status	*male* 90.2%	*female* 9.8%		*single* 19.7%	*married* 77.8%	*other* 2.6%
Age (in years)	*< 31* 11.5%	*31 – 35* 13.1%	*36 – 40* 18.9%	*41 – 45* 21.3%	*46 – 50* 13.9%	*> 50* 21.3%
Prof. experience (in years)	*< 4* 11.7%	*4 – 6* 10.0%	*7 – 9* 9.2%	*10 – 12* 10.0%	*13 – 15* 10.8%	*> 15* 48.3%
Educational level (degree)	*Undergraduate* 17.5%	*Graduate* 82.5%				
Occupational level	*Junior manager* 16.1%	*Senior manager* 44.9%		*Head of asset management team* 20.3%		*CIO or CEO* 18.6%
Type of managed fund	*Mutual fund* 30.9%	*Special fund* 43.6%		*both* 25.5%		
Investment segment	*Equities* 58.1%	*Bonds* 36.8%		*Money market* 5.1%		

[25] The number of mutual funds increased from 1,188 in 1997 to 2,152 in 2003. Figures are taken from the annual report 2003 of the BVI, p. 94.

[26] See FEFSI (2003).

[27] Ranking is taken from 'Pensions & Investments' money managers directory 2003. Current values of assets under management are from companies' homepages.

Table 5-2b

Fund managers' personal characteristics [Germany]

Country	GERMANY					N=173
Gender / Marital status	*male* 91.8%	*female* 8.2%		*single* 43.7%	*married* 53.9%	*other* 2.4%
Age (in years)	*< 31* 22.0%	*31 – 35* 34.7%	*36 – 40* 23.1%	*41 – 45* 16.2%	*46 – 50* 2.9%	*> 50* 1.2%
Prof. experience (in years)	*< 4* 29.3%	*4 – 6* 19.8%	*7 – 9* 20.4%	*10 – 12* 13.8%	*13 – 15* 9.6%	*> 15* 7.2%
Educational level (degree)	*Undergraduate* 15.4%	*Graduate* 84.6%				
Occupational level	*Junior manager* 26.6%	*Senior manager* 52.7%	*Head of asset management team* 15.4%			*CIO or CEO* 5.3%
Type of managed fund	*Mutual fund* 36.1%	*Special fund* 51.5%	*both* 12.4%			
Investment segment	*Equities* 71.5%	*Bonds* 26.7%	*Money market* 1.9%			

Table 5-2c

Fund managers' personal characteristics [Switzerland]

Country	SWITZERLAND					N=31
Gender / Marital status	*male* 90.3%	*female* 9.7%		*single* 48.4%	*married* 51.6%	*other* 0.0%
Age (in years)	*< 31* 22.6%	*31 – 35* 9.7%	*36 – 40* 29.0%	*41 – 45* 22.6%	*46 – 50* 9.7%	*> 50* 6.5%
Prof. experience (in years)	*< 4* 13.3%	*4 – 6* 23.3%	*7 – 9* 10.0%	*10 – 12* 23.3%	*13 – 15* 10.0%	*> 15* 20.0%
Educational level (degree)	*Undergraduate* 17.2%	*Graduate* 82.8%				
Occupational level	*Junior manager* 9.7%	*Senior manager* 48.4%	*Head of asset management team* 19.4%			*CIO or CEO* 22.6%
Type of managed fund	*Mutual fund* 46.2%	*Special fund* 42.3%	*both* 11.5%			
Investment segment	*Equities* 75.3%	*Bonds* 19.3%	*Money market* 5.3%			

5.4 Description of fund managers' bonus payments in three countries

The bonus payment is the dominant explicit incentive of fund managers. They usually receive it once a year in addition to their fixed salary. The size of the bonus is measured in percentage of the fixed salary. The median bonus for US fund managers is – according to our sample – 100%, the mean is even higher at 184% (see *Table 5-3*). The figures for the European markets are considerably lower: the median bonus in Germany is 25% and the mean is 30%. The Swiss figures are 30% and 37%, respectively. We thus establish considerable differences between the US and Continental Europe. The median bonus in the US is about 3-4 times that of Europe, and the mean is even 5-6 times higher. This information on average bonus payments is confirmed by the distribution of bonus size in *Figure 5-1*: US bonus payments become relevant where Continental European bonus payments have already reached their maximum. When it comes to inter-European differences, the Swiss industry seems to pay only slightly higher bonuses than the German funds.

Table 5-3

Average bonus clustered by country and position

Question: "Average bonus you receive in addition to your fixed salary?"
Question: "Current position within your company?"

		United States	Germany	Switzerland
Mean [Median]		183.60% [100.00%]	30.05% [25.00%]	36.84% [30.00%]
Junior asset manager	(N)	64.50% (18)	17.06% (45)	10.00% (03)
Senior asset manager	(N)	119.17% (53)	28.83% (89)	32.33% (15)
Head of AM team	(N)	203.92% (24)	46.08% (26)	53.67% (06)
CIO / CEO	(N)	440.68% (22)	57.78% (09)	43.57% (07)
Total[1)]		N=121	N=173	N=31
Rank correlation between position and high bonus[2)]		0.359*** (0.000)	0.488*** (0.000)	0.381** (0.035)

1) Total number of responses exceeds the cumulated number of responses by position, as a few managers did not disclose their current position.
2) The table gives the coefficient of the Spearman rank correlation with the p-value in parentheses.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

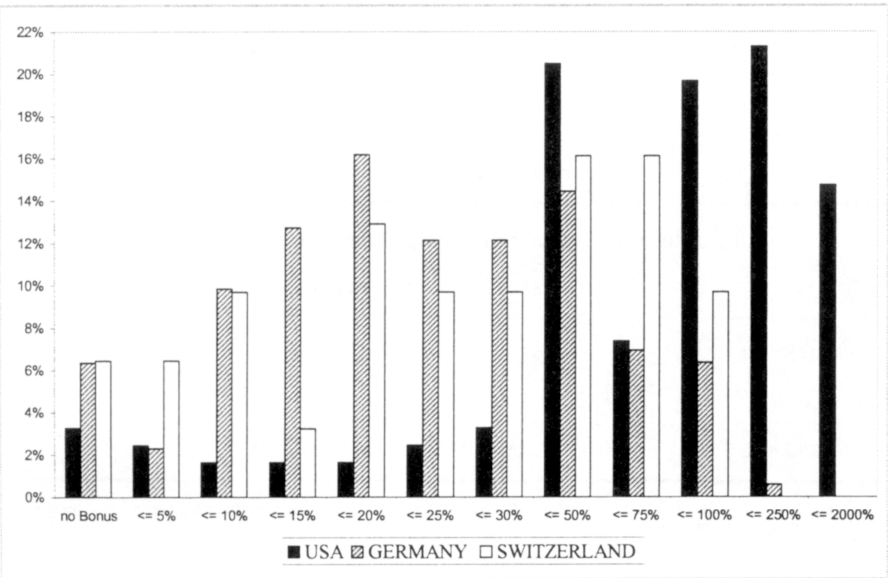


Figure 5-1: Distribution of bonus

Bonus size increases with the fund managers' position. US junior asset managers, for example, receive an average 65% bonus but chief investment/executive officers receive 440%, i.e. a multiple of almost 7. The Continental European experience is somewhat less dramatic: the increase in bonus size reflecting the hierarchical difference is about 4 times.

Hence, we establish that the US industry has a much higher level of bonus payments as well as a somewhat stronger relative increase, so that these explicit incentives for US fund managers are clearly stronger than for their Continental European counterparts. Even though we observe a difference between Germany and Switzerland, both countries seem to be very similar compared with the US. A formal examination testing for significant differences in bonus payments shows, indeed, that the US is very different from the Continental European situation whereas Germany and Switzerland are not significantly different from each other: a pooling of Germany and Switzerland does make sense (*Table 5-4*). So, in the following we will just compare the US with Continental Europe, in short: CE, comprising of Germany and Switzerland.

5.5 Institutional correlates of high bonus payments

Since position apparently affects bonus payments it is natural to ask about the existence of further determinants of bonus payments. For example, it may seem plausible that age and experience, which again are correlated with posi-

tion, exert an independent influence on bonus size. It seems thus advisable to run a multivariate regression. Because bonus payments are the left-censored data a TOBIT approach is chosen.

Table 5-4
Pooling of German and Swiss data

H_0: no difference between countries regarding distribution of average bonus[1)]

	United States	Germany	Switzerland
United States	---	-9.832*** (0.000)	-5.047*** (0.000)
Germany	-9.832*** (0.000)	---	-1.156 (0.248)
Switzerland	-5.047*** (0.000)	-1.156 (0.248)	---

[1)] The table gives the z-value of the Mann Whitney U-test with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

We try all available institutional information items into this regression and find that only very few of them are important (see *Table 5-5*, also listing the non-significant variables in a footnote). There are just two statistically significant determinants of bonus size for the US and Continental Europe (CE) as well, i.e. position and firm size. So, the intuitively appealing position argument holds in a multivariate context too and appears to be stronger than possible influences from age, experience or other variables. The second "worldwide" determinant, firm size, means that apparently bigger companies pay more. This may indicate that larger firms rely more on bonus payments as an incentive mechanism. An explanation could be that larger fund management firms must rely stronger on explicit incentive schemes as implicit incentives may be weaker.

In addition to these "worldwide" determinants, there is a specific determinant for the US: we find that equity managers earn higher bonuses than bond managers. A reason could be that a high-quality equity management is more important as demand reacts more sensitive. This argument would help to explain the trans-atlantic difference as customer demand in CE may react less elastic on performance differences.

In another question we have directly asked fund managers about determinants of bonus size. Interviews have shaped four important categories of determinants which are given in Table 5-6. These possible determinants are analyzed in three ways: column (1) presents the share of respondents that give high relevance to these determinants, separately for the US and CE. Relative fund performance is by far the most important determinant in the US as almost half

of all respondents give the highest relevance, whereas other determinants receive about a quarter at most. Thereafter, business development ranks before subjective assessment whereas absolute fund performance does not seem to be important. The situation is different in CE: here business development is somewhat more important than relative fund performance. Rank positions three and four are the same as in the US. Column (2) in Table 5-6 shows that the difference between the US and CE is indeed statistically significant for business development and relative fund performance.

Table 5-5
Major institutional drivers of bonus payment

	TOBIT regression of high bonus[1)]	
	UNITED STATES	CONTINENTAL EUROPE
Constant	*-320.882*** (0.001)*	*-21.185*** (0.000)*
Higher position	153.361*** (0.000)	15.625*** (0.000)
Working for bigger companies	61.386*** (0.001)	4.917*** (0.000)
Managing rather equities than bonds	32.299*** (0.007)	-0.575 (0.423)
Adjusted R^2	0.261	0.307

[1)] The table gives the coefficients of the TOBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on bonus payment only: gender, marital status, age, professional experience, educational level, research and data procurement, type of managed fund, responsibility for assets under management.

In a next step we correlate these determinants of bonus with the size of bonus (see column 3). We find that coefficients are mostly positive, indicating that higher bonuses lend importance to determinants from the viewpoint of fund managers. For the US, the correlation is significant for business development only. The influence of fund performance is comparatively weaker, however. This may reveal a truly widespread and self-evident importance of relative fund performance, just as shown by its high overall importance (see column 1). For higher positions, however, where bonuses become dramatically higher, business development gains importance. When controlling for manager's position (not reported), the partial correlation between bonus payment and business development is no more significant 0.145 (0.131). On the other hand, subjective assessments gain importance in this context 0.181* (0.058). It is interesting to see, that the CE experience is different: here we observe a kind of trade-off between increasing importance of relative fund performance and decreasing importance of subjective assessment. This may be caused by the earlier observed fact that larger firms, who rely more on explicit incentives,

prefer rather objective indicators – such as fund performance – as incentives than subjective assessments. Here, the control for company size (not reported) results in a weaker (negative) correlation between bonus payment and subjective assessment -0.123* (0.097). However, this relation is still slightly significant at ten percent level. On the other hand, the significant importance of relative fund performance remains unchanged 0.246*** (0.001).

Table 5-6
Determining factors for size of bonus

Question: "If you receive a performance-based remuneration, which criteria determine the size of that bonus?" Six answer categories ranging from "highest relevance" (coded as 1) to "no relevance" (coded as 6).

	Share of high relevance[1]		H_0: no difference[2]	Rank correlation with high bonus[3]	
	United States	Continental Europe		United States	Continental Europe
Business development of company	77.4%	88.8%	-1.890* (0.059)	0.247*** (0.008)	0.054 (0.464)
Relative fund performance	81.6%	79.3%	-2.339** (0.019)	0.153 (0.103)	0.376*** (0.000)
Subjective assessment by superiors	74.1%	84.9%	-0.859 (0.390)	0.121 (0.196)	-0.145** (0.048)
Absolute fund performance	33.0%	35.4%	-1.374 (0.169)	0.070 (0.472)	0.021 (0.785)

[1] The share of high relevance is calculated as the sum of answers given to categories 1-3.
[2] The table gives the z-value of the Mann Whitney U-test with p-value in parentheses.
[3] The table gives the coefficients of the Spearman rank correlation with the p-value in parentheses.
Stars refer to level of significance: * 10%, ** 5%, *** 1%.

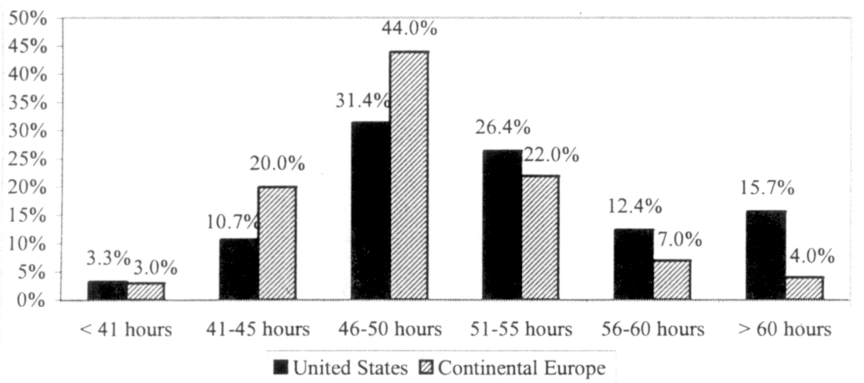
5.6 Bonus and working effort

Having seen that bonus size depends to some degree on institutional determinants, we now turn to the individual level: according to elementary theory and empirical studies, bonus payments should go along with higher working effort. We confirm this pattern for our survey data, too, lending credence to the data quality.

The measure of working effort which we apply is the "average working hours per week", an information which respondents provide about themselves.

Figure 5-2 gives the distribution for the US and CE. US fund managers obviously work longer, although the difference becomes somewhat smaller when we control for position (not presented).[28] Moreover, working effort is in the US and CE strongly positively correlated with bonus size (see footnote in Figure 5-2). The problem is, however, that any such relation is influenced by other factors, such as position (found above). We thus run the multivariate regression from Table 5-5 again, covering a large set of institutional determinants, and add the variable working effort. *Table 5-7* shows that explanatory power, proxied by the R-squared, can be increased by this additional variable (when compared to Table 5-5). Moreover, higher working effort turns out to be positively related with bonus payment, for the US as well as for CE. However, the coefficient is significant for CE only but fails to be statistically significant for the US, although its relative impact is higher for the US.

Question: "Average working hours per week?"



H_0: no difference between the United States and Continental Europe, z-value of the Mann-Whitney U-Test: -4.089*** (0.000). Coefficients of the Spearman rank correlation between more working effort and high bonus, United States: 0.419*** (0.000), Continental Europe: 0.309*** (0.000). The respective p-value is given in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Figure 5-2: Working effort and influence of bonus

So, working effort is useful to understand bonus size, which means working harder helps to earn a higher bonus. Reverse causality seems also to be plausible; however, i.e. a higher bonus could motivate fund managers to work harder.

[28] After controlling for position the difference is indeed smaller, but it is still significant at one per cent level: The z-value of the Whitney U-Test decreases from -4.089*** to -3.464***.

Again, we control for other institutional factors when we run a regression to "explain" working effort. The result in Table 5-8 shows that indeed higher bonus payments are a significant determinant of higher working effort, although only weakly significant for the US. We find, moreover, that bigger firms in the US may provide an environment or enforce a style where working hours are longer. Interestingly, fund managers in high positions tend to work harder but it is not the position that matters, as the coefficient is insignificant, but bonus payments are more important. Finally, younger fund managers in the US work harder, a finding consistent with the literature (see e.g. Holmström, 1999, as well as Gibbons and Murphy, 1992)[29] whereas their younger CE colleagues do not.

Table 5-7
Working effort as additional driver of bonus payment

	TOBIT regression of high bonus[1)]	
	UNITED STATES	CONTINENTAL EUROPE
Constant	*-403.377*** (0.002)*	*-32.296*** (0.000)*
Higher position	150.374*** (0.000)	14.218*** (0.000)
Working for bigger companies	47.870** (0.014)	4.737*** (0.000)
Managing rather equities than bonds	31.671*** (0.007)	0.275 (0.706)
More working effort	37.357 (0.131)	4.366*** (0.005)
Adjusted R^2	0.274	0.332

1) The table gives the coefficients of the TOBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on bonus payment only: gender, marital status, age, professional experience, educational level, research and data procurement, type of managed fund, responsibility for assets under management.

In summary, the classic economic intuition is supported by our survey data: in explaining bonus size we find working effort to be important and partially significant and in explaining working effort the bonus payment is significant. So, there is support for the idea of a two way causality. Beyond this core finding, position is an important ingredient and firm size. Age, however, is of minor importance to understand the interaction of bonus and working effort.

[29] Gibbons and Murphy (1992, p. 469) state that "in the absence of contracts, managers typically work too hard in early years (while the market is still assessing the manager's ability) and not hard enough in later years."

Table 5-8
Triggers of high working effort

	Ordered PROBIT regression of high working effort[1)]			
	United States		Continental Europe	
Higher bonus	0.001*	(0.084)	0.010***	(0.006)
Higher position	0.145	(0.304)	0.121	(0.325)
Higher age	-0.116	(0.126)	0.044	(0.556)
Working for bigger companies	0.286***	(0.000)	0.021	(0.649)
Pseudo R^2	0.089		0.036	

1) The table gives the coefficients of the ordered PROBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on working effort only: gender, marital status, professional experience, educational level, research and data procurement, type of managed fund, responsibility for assets under management.

5.7 Bonus and risk-taking

Having learned that plausible ex ante expectations on bonus and working effort are supported by the data, what about the other classical relation, i.e. on bonus and risk-taking? We do not find evidence that bonus would increase risk-taking. Evidence rather suggests that there may be a self-selection in the sense that willingness to take risks is rewarded by higher bonuses.

The survey provides two measures of willingness to take risk. First, we ask for a self-classification of risk aversion in professional investment decisions. This measure gives information about the personality of the fund manager, we call it the "self-assessed risk aversion". Second, we ask for the tracking error that the fund manager is allowed in practice (in a subjective categorization between high tracking error and indexing) and then the tracking error the same manager does actually practice. The difference between both provides information about the degree that the fund manager is willing to actively use the maximum tracking error allowed and thus provides a measure of realized risk-taking. We call this second measure the "degree of active management".

Regarding the self-assessed risk aversion, *Figure 5-3* provides information on the US and CE fund managers' self-assessment. It can be seen that the mean value is similar for both groups but that the US fund managers show higher deviations from the mean. The rank correlation with bonus size, however, is only for CE fund managers statistically significant, indicating that bonus and risk-taking are positively related.

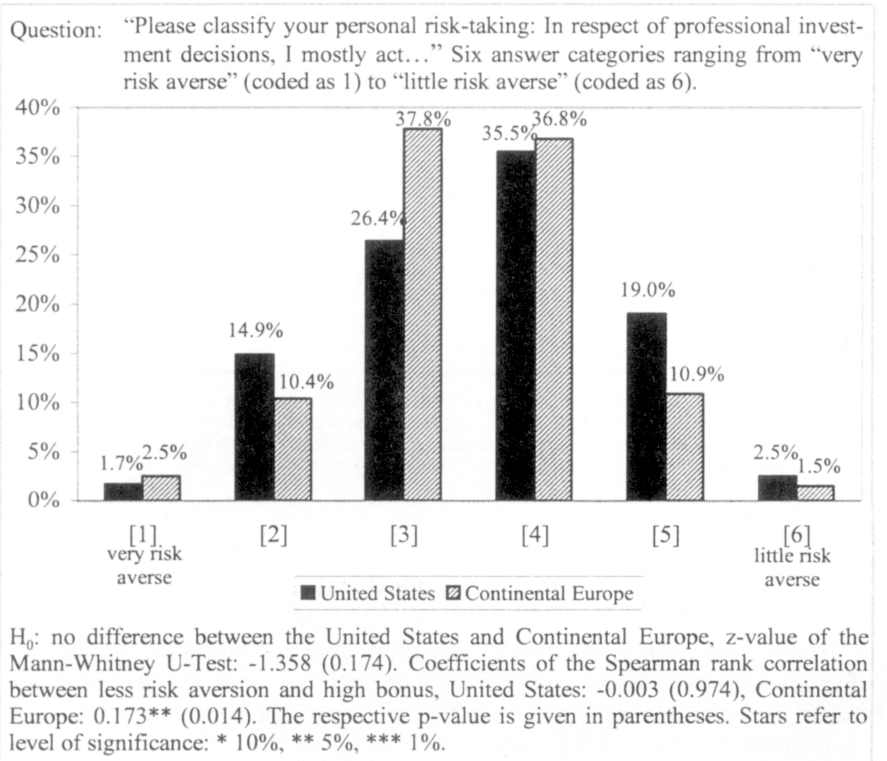
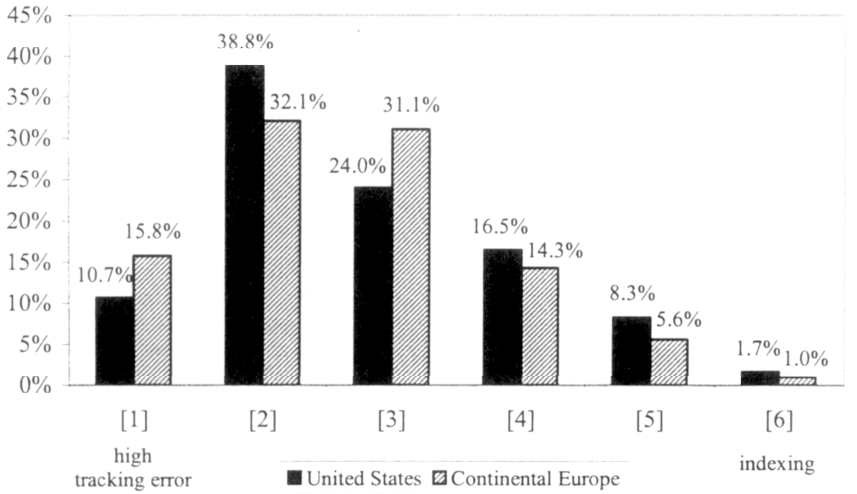


Figure 5-3: Self-assessment of risk aversion

Next, we observe the distributions of the tracking error, i.e. active management, allowed and the degree of active management realized. *Figure 5-4a* shows that fund managers perceive their allowed tracking error to be clearly different from indexing. Whereas there emerges no significant difference between the US and CE in this respect, the distribution of the degree of active management in *Figure 5-4b* shows a remarkable difference: US fund managers prefer with 81.8% to use the maximum tracking error allowed, CE fund managers do so to 53.1% only, and more than 40% of the latter do not fully use the tracking error allowed. It is interesting to note the relation with bonus and the tracking error allowed, as documented in Figure 5-4a: higher bonus is related with higher tracking error. Regarding the degree of active management realized, however, bonus is not related within countries but it seems plausible that the higher bonus level in the US could be responsible for the overall higher level of realized risk-taking.

Question: "Please describe your trading style: What trading style are you allowed?" Six answer categories ranging from "high tracking error" (coded as 1) to "indexing" (coded as 6).



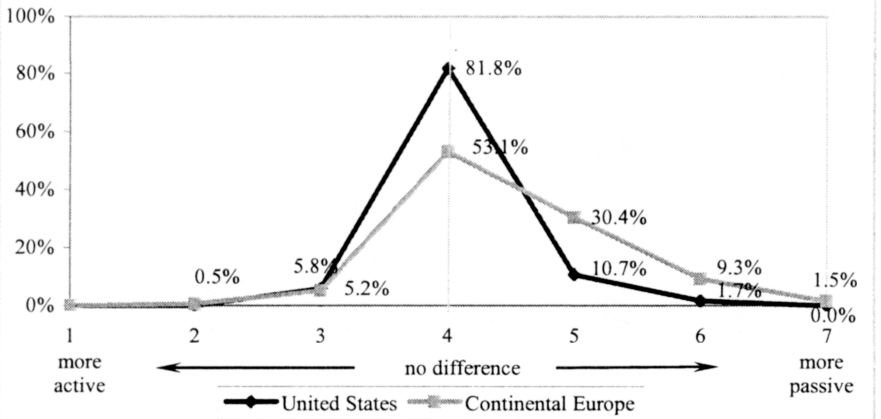
H_0: no difference between the United States and Continental Europe, z-value of the Mann-Whitney U-Test: -0.715 (0.474). Coefficients of the Spearman rank correlation between more active management allowed and high bonus, United States: -0.159* (0.081), Continental Europe: -0.186*** (0.009). The respective p-value is given in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Figure 5-4a: Extent of active management allowed

In summary, the classic economic intuition is supported by our survey data: in explaining bonus size we find working effort to be important and partially significant and in explaining working effort the bonus payment is significant. So, there is support for the idea of a two way causality. Beyond this core finding, position is an important ingredient and firm size. Age, however, is of minor importance to understand the interaction of bonus and working effort.

To analyze whether specific risk taking behavior has positive influence on performance-based remuneration, we add the presented measures to the multivariate regressions from Table 5-7. It is found that neither the first, nor the second measure of risk taking has significant influence on bonus in the US (see *Table 5-9*). The additional consideration of these measures does not improve explanatory power of the TOBIT regression for the US. In contrast, less risk-aversion (by self-assessment) significantly drives the bonus in CE. Accordingly, the influence of risk taking behavior increases the R-squared from 0.332 (in Table 5-7) to 0.359. The more active management style has only insignificant impact on bonus in both continents.

Question: "Please describe your trading style:" I) "What trading style are you allowed?" II) "What trading style do you actually follow?" Six answer categories ranging from 1 "high tracking error" to 6 "indexing".



H_0: no difference between the United States and Continental Europe, z-value of the Mann-Whitney U-Test: -4.900*** (0.000). Coefficients of the Spearman rank correlation between active management and high bonus, United States: -0.058 (0.525), Continental Europe: -0.015 (0.840). The respective p-value is given in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Figure 5-4b: Difference between allowed and actually chosen extent of active management

When we come to explaining the degree of risk-taking, we confirm the finding of the bivariate analysis: bonus does not seem to be too important within countries; an exception is higher bonus that helps to understand less risk aversion in CE. *Table 5-10* shows, however, that age matters for both measures of risk-taking. Panel A which explains self-assessed risk aversion documents a positive coefficient on lower age, indicating that younger fund managers are less risk averse (for theoretical discussion see Prendergast and Stole, 1996).[30] Panel B shows moreover that older fund managers stick closer to the maximum tracking error allowed. So, they behave somewhat less risk averse than their younger counterparts. Chevalier and Ellison, (1999a) provide empirical evidence that younger fund managers do take lower unsystematic risk (and deviate

[30] A negative relation between experience and risk taking behavior is also empirically found, e.g. in Graham (1999) for investment newsletters and Li (2002) for financial analysts.

less from typical investment behavior) than older fund managers. We interpret the difference between self-assessed risk aversion and actual degree of active management as follows: It may possibly reflect a lack of self-assessment ability of younger managers and a specific overconfidence regarding their risk taking behavior, respectively. Somewhat puzzling may be the significance of further determinants for CE. Less experienced and less research oriented fund managers prefer a more active management style.

Table 5-9
All drivers of bonus payment

	TOBIT regression of high bonus[1)]	
	UNITED STATES	CONTINENTAL EUROPE
Constant	*-431.892*** (0.003)*	*-44.951*** (0.000)*
Higher position	156.588*** (0.000)	14.561*** (0.000)
Working for bigger companies	51.676*** (0.009)	4.831*** (0.000)
Managing rather equities than bonds	32.209*** (0.007)	0.160 (0.825)
More working effort	36.022 (0.150)	4.424*** (0.006)
Less risk aversion	2.933 (0.911)	3.764** (0.025)
More active management style	20.991 (0.719)	1.650 (0.393)
Adjusted R^2	0.273	0.359

[1)] The table gives the coefficients of the TOBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on bonus payment only: gender, marital status, age, professional experience, educational level, research and data procurement, type of managed fund, responsibility for assets under management.

In summary, there is a surprise in findings as the bonus size is not related to the degree of risk-taking within countries. It may be that the overall higher bonus level of the US firms encourages their fund managers to almost fully use the maximum tracking error allowed. In CE there may be rather a self-selection at work, in the sense that less risk averse fund managers receive higher boni.

5.8 Bonus and opportunistic behavior

Bonus payments do not only impact working effort and risk-taking but could also influence the degree of opportunistic behavior. Our data support unanimously that higher bonus size is related with less opportunistic behavior in the sense of being less oriented towards the price trend and opinion leaders.

Table 5-10
Triggers of less risk aversion and active management style

	Ordered PROBIT regression of less risk aversion[1)]			
	UNITED STATES		CONTINENTAL EUROPE	
Higher bonus	-0.000	(0.794)	0.009**	(0.016)
Higher age	-0.212**	(0.013)	-0.119	(0.111)
Higher position	0.375**	(0.019)		
More working effort	-0.205**	(0.016)		
More research and data procurement	0.016	(0.115)	0.017**	(0.035)
Working for bigger companies			-0.085*	(0.092)
Pseudo R^2	0.042		0.028	

	Ordered PROBIT regression of active management style[1)]			
	UNITED STATES		CONTINENTAL EUROPE	
Higher bonus	-0.000	(0.552)	0.001	(0.851)
Higher age	0.187**	(0.030)	0.243**	(0.039)
More experience			-0.253***	(0.004)
More research and data procurement			-0.037***	(0.000)
Managing mutual *and* special funds	0.215**	(0.021)		
Pseudo R^2	0.075		0.068	

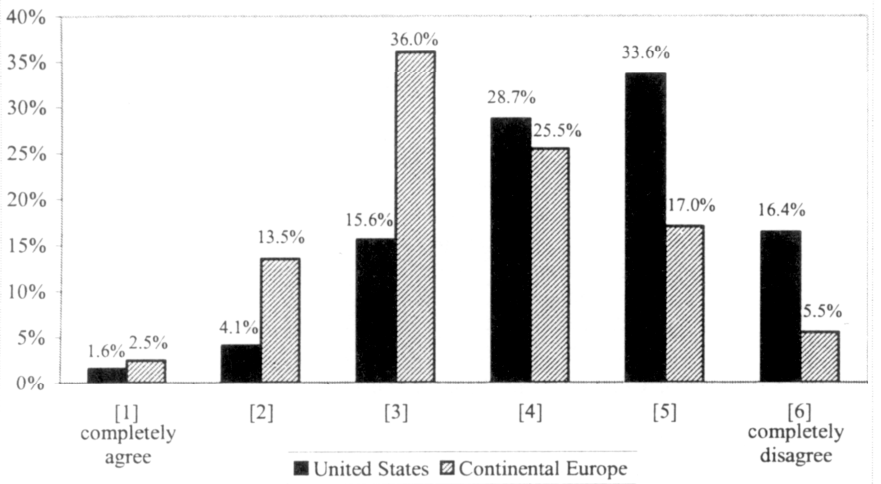
[1)] The table gives the coefficients of the ordered PROBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on risk aversion / active management style only: gender, marital status, educational level, major investment segment, responsibility for assets under management.

In order to measure opportunistic behavior we have asked three questions. First, to which degree do fund managers characterize themselves as generally following the trend which captures herding behavior. Interviews found that this question quite well met the critical point: trend following means to follow others despite better information but it also means to be up to date and to do what is fashionable. The answers presented in *Figure 5-5* show that fund managers in general do not agree with trend following behavior. Moreover, US fund managers disagree much stronger than CE fund managers. Rank correlations show that bonus size is negatively related with trend following behavior.

The second question to grasp opportunistic behavior aims at the importance of opinion leaders in investment decisions. Again, *Figure 5-6* shows that opin-

ion leaders are not regarded as very relevant by fund managers, however, they are not unimportant too. Interestingly, US fund managers rather listen to opinion leaders from the industry, whereas CE fund managers prefer opinion leaders from the economy. The rank correlations with bonus size are all negative, i.e. opinion leaders are of less importance for fund managers with higher bonus payment. So, there is a first interim finding: bonus is related with less opportunistic behavior. We will thus analyze whether these negative correlates help to explain bonus and whether bonus is a possible determinant to explain less opportunistic behavior in a multivariate regression.

Statement: "I generally follow the trend." Six answer categories ranging from "completely agree" (coded as 1) to "completely disagree" (coded as 6).

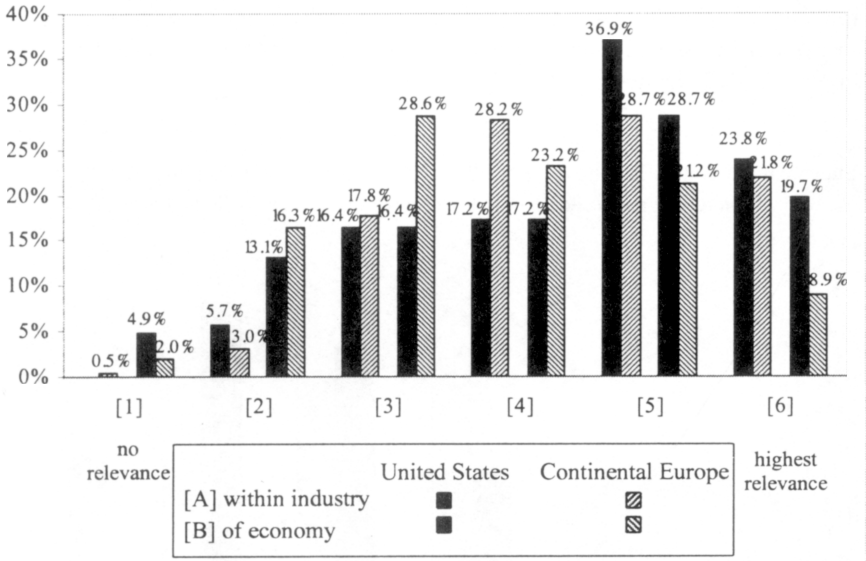


H_0: no difference between Continental Europe and the United States, z-value of the Mann-Whitney U-Test: -5.924*** (0.000). Coefficients of the Spearman rank correlation between less following the trend and high bonus, United States: 0.283*** (0.002), Continental Europe: 0.079 (0.265). The respective p-value is given in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Figure 5-5: Opportunistic behavior – following the trend

Question number three considers fund managers' portfolio churning: Following Dow and Gorton's (1997) argumentation, fund managers face the opportunity to signalize their competence by high trading volume – even without supporting information. However, with regard to trading costs, this kind of "actively doing nothing" is hardly in the investors' interest. Barber and Odean (2000) point out, that excessive trading volume can also reflect overconfidence, leading to underperformance (see also Carhart, 1997).

Request: "Please assess the following sources of information used in making investment decisions:"
[A] "Statements of opinion leaders within the industry (e.g. Buffett),"
[B] "Statements of economic opinion leaders (e.g. Greenspan, Duisenberg)."
Six answer categories ranging from "highest relevance" (coded as 1) to "no relevance" (coded as 6).



H_0: no difference between the United States and Continental Europe, z-value of the Mann-Whitney U-Test: [A] -0.926 (0.354), [B] -2.671*** (0.008). Coefficients of the Spearman rank correlation between less following opinion leaders and high bonus, United States: [A] 0.175* (0.053), [B] 0.142 (0.119), Continental Europe: [A] 0.140** (0.047), [B] 0.090 (0.203). The respective p-value is given in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%.

Figure 5-6: Opportunistic behavior – following opinion leaders

We test fund managers' excessive trading with the request to assess the following statement: "I often trade too much, as my clients demand short-term performance". The distribution of answers is presented in *Figure 5-7*. Even if most of the fund managers disagree with that statement, it is found that US managers disagree to a significantly larger extent, as the Mann-Whitney U-Test confirms. However, there is no significant relation between excessive trading and the bonus payment received – neither in the US nor in CE. Thus, excessive trading behavior is not taken into account in the following multivariate analysis of opportunistic behavior.

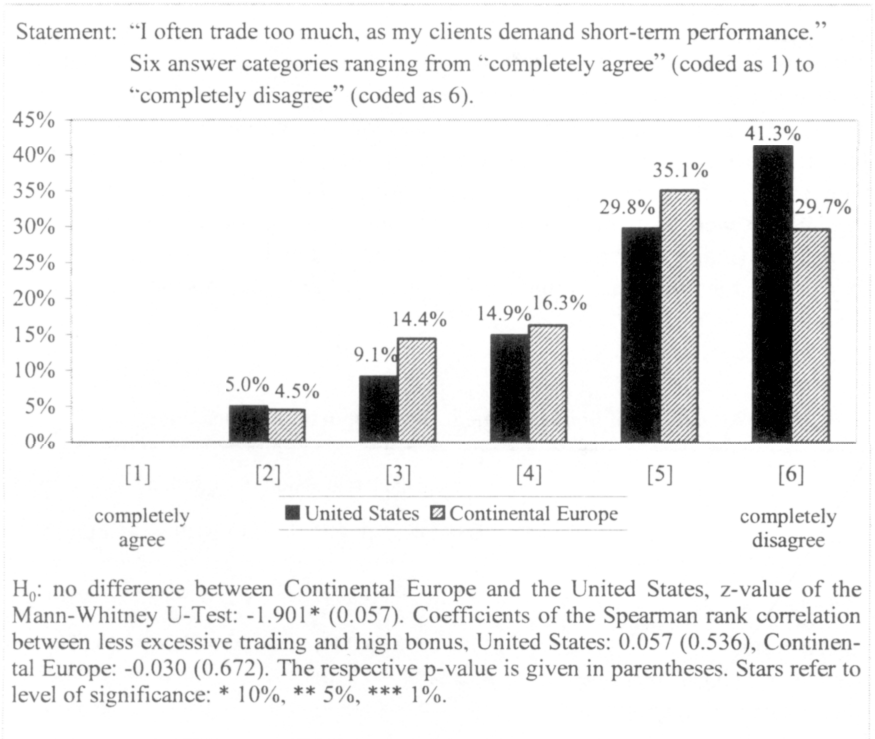


Figure 5-7: Excessive trading behavior

The multivariate consideration of opportunistic behavior unveils the following: Even if following the trend is significantly negatively correlated with bonus payments in the US, it is no important driver of the latter in a multivariate setting (see *Table 5-11*). Adding this variable to the TOBIT regression of Table 5-9 does not improve the R-squared, neither in the US nor in CE. Similarly, the bonus size is related with less following opinion leaders (especially, opinion leaders within the industry) in both continents. However, the significant influence does not hold in multivariate analyses, too. Hence, we have to conclude that less opportunistic behavior has no significantly explanatory power for bonus size.

The multivariate analysis of opportunistic behavior reveals that bonus as explicit incentive is no major driver of herding in terms of following the trend (see *Table 5-12*). However, we find that this kind of less opportunistic behavior seems to be driven by implicit career concerns in the US: younger managers who show more working effort follow the trend to a significantly lower degree. Hence, younger managers abstain from the possibly to "hide in the herd" (see

Devenow and Welch, 1996). This is in line with the finding that younger fund managers are less risk averse (see Table 5-10, Panel A). The situation is quite different in CE. There, herding decreases with attained occupational level and company size. Even if the multivariate analyses clearly show that bonus does not directly explain less opportunistic behavior, one might argue that the performance-based salary has at least indirect influence: It is positively correlated with more professional experience and more working effort (major drivers in the US) as well as with higher position and working for bigger investment companies (major drivers in CE). Furthermore, bonus has only weak explanatory power for following opinion leaders. Accordingly, the results are not presented here.

Table 5-11
All drivers of bonus payment (incl. opportunistic behavior)

	TOBIT regression of high bonus[1)]	
	UNITED STATES	CONTINENTAL EUROPE
Constant	*-595.936*** (0.004)*	*-38.846*** (0.000)*
Higher position	145.600*** (0.000)	14.819*** (0.000)
Working for bigger companies	48.324** (0.016)	5.078*** (0.000)
Managing rather equities than bonds	26.527** (0.039)	0.337 (0.648)
More working effort	30.798 (0.241)	4.183*** (0.008)
Less risk aversion	5.679 (0.829)	3.884** (0.022)
Less following the trend	22.734 (0.397)	-1.379 (0.274)
Less following opinion leaders (industry)	4.286 (0.873)	-0.275 (0.854)
Less following opinion leaders (economy)	17.437 (0.432)	-0.565 (0.683)
Adjusted R^2	0.257	0.350

[1)] The table gives the coefficients of the TOBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on bonus payment only: gender, marital status, age, professional experience, educational level, research and data procurement, type of managed fund, responsibility for assets under management, active management style.

5.9 Conclusions

The study examines the influence of incentives on professional investment behavior based on a questionnaire survey with fund managers in the United States and Continental Europe. On the one hand, it is found that the size of bo-

nus payments differs significantly intra country, dependent on the position reached. On the other hand, the survey also reveals relevant differences regarding the importance of this kind of performance-based remuneration in trans-atlantic comparison. We find plausible correlates between the fund managers' investment behavior and the bonus they receive. The bonus has very classic consequences on working effort and risk taking behavior, as it stimulates working effort and is positively related with less risk aversion. Regarding these results, we conclude that bonus payments motivate fund managers to act more in line with investors' preferred behavior. Furthermore, bonus payments have less expected consequences on other aspects of behavior – a higher bonus tends to reduce opportunistic behavior: It leads to less following the trend or opinion leaders. Due to complexity of factors driving fund manager's investment behavior, the influence of the bonus on risk taking and less opportunistic behavior does only hold in univariate settings.

Table 5-12
Triggers of less following the trend

	Ordered PROBIT regression of less following the trend[1)]	
	United States	Continental Europe
Higher bonus	0.000 (0.289)	-0.004 (0.269)
Higher age	-0.258*** (0.009)	-0.111 (0.136)
Higher position		0.327*** (0.006)
More professional experience	0.229*** (0.010)	
More working effort	0.208*** (0.010)	
Working for bigger companies		0.164*** (0.000)
Less risk aversion		0.172*** (0.028)
Pseudo R^2	0.058	0.038

1) The table gives the coefficients of the ordered PROBIT regression with p-value in parentheses. Stars refer to level of significance: * 10%, ** 5%, *** 1%. The following personal characteristics have insignificant influence on following the trend only: gender, marital status, professional experience, educational level, research and data procurement, type of managed fund, responsibility for assets under management.

We come to the conclusion that bonus works. Since the bonus level is significantly higher in the US in trans-atlantic comparison, we would claim higher bonus payments in CE as well. However, such an increase in CE would create a trade-off: It would increase the average portfolio risk but also the contribution towards efficiency. Finally, one has to question if the chosen risk level is adequate and in the investors' interest. Or does the high bonus level in the US possibly trigger excessive risk taking behavior? This question seems to be worthy of deeper consideration.

6. What drives home bias? Evidence from fund managers' views[31]

6.1 Introduction

Professionals invest larger shares in home assets than would be warranted based on capital market theory. They thus give away available opportunities to increase their risk-adjusted returns. This (equity) home bias puzzle has attracted plentiful investigation, yet a fully convincing explanation so far remains to be found (Lewis, 1999, Karolyi and Stulz, 2003). Several approaches can claim theoretical or empirical substantiation, but they do not necessarily exclude each other. The questions that are therefore raised are: which factors are decisive, and are we confident that all important factors have been considered? This paper contributes to the literature by answering both questions. We conclude that more factors than have generally been discussed could "explain" home bias in a univariate setting. Some of these also hold in a multivariate approach. They clearly point towards driving forces of home bias that are associated with less than fully rational behavior (see Shiller, 2003).

Early explanations of home bias focused on institutional barriers to international investment. This, however, does not seem to be relevant any longer in a financially integrated world (see also Tesar and Werner, 1995, Warnock, 2002, Ahearne et al., 2002). Additionally, uncertainty about the advantages of international diversification does not really provide a barrier (Lewis, 1999). Another line of argument has advanced informational asymmetries between countries, so that home preference reflects an informational advantage of local investors (see e.g. Coval and Moskowitz, 2001, in a domestic setting). As the basic alternative explanation, French and Poterba (1991) have suggested behavioral approaches, of which the "relative optimism" of local investors towards

[31] I would like to thank my co-author Lukas Menkhoff. We would like to thank seminar participants and in particular Thomas Gehrig for helpful comments. We also thank the German Investment Association BVI for its very useful supporting letter. Financial support by the Wissenschaftsförderung der Sparkassenorganisation e.V., the research promotion arm of the German savings bank organization, is gratefully acknowledged.

home assets seems to be empirically well established even among fund managers (Shiller et al., 1996, Strong and Xu, 2003).

The focus on the most sophisticated group of fund managers is important if the issue of rationality is at stake. Home bias means sub-optimal diversification and it is known from earlier literature that private investors tend to hold poorly diversified portfolios (Lease et al., 1974, Baxter and Jermann, 1997, Odean, 1998). By contrast, professional fund managers are nowadays well informed about financial market theory and regularly apply instruments of portfolio optimization. They understand the advantages of diversification in general, and of international diversification in particular. Moreover, they command over institutional requirements to implement international investment strategies. Finally, studies indicate that they may be less prone to behavioral distortions in their decision-making than private investors (Shapira and Venezia, 2001). These arguments raise the question of whether home bias is a preference of (some) fund managers as well.

It can be misleading to interpret the decisions of fund managers based on the ex post outcome, as their portfolios are often influenced by less professional capital owners. The latter may for example restrict international investments so that effective asset allocation is different from what professionals prefer. To circumvent this restriction and learn about undistorted fund managers' views, they have been asked via a survey questionnaire. The core question addresses their preferred international asset allocation independent from any fund restrictions.

In general, a survey approach can provide evidence that is complementary to more conventional empirical methods. Its relative advantage is its broad scope and identification of groups in the market as well as of motivational clusters.[32] These advantages are important here, as the paper focuses on an enlarged set of driving forces for home bias. Moreover, the simplifying notion of "home bias" is analyzed for disaggregated data so that persons may show home bias of various degrees. The distinction into degrees of home bias, in the extremes as showing any home bias at all versus none, allows the examination of driving forces in more detail than previously.

The responses of 234 fund managers in Germany revealed that they would invest about three times as much capital in the home market than would be advisable from the viewpoint of international diversification. Although this degree of home bias is much less than can be observed from private investors, it is still remarkably high considering that the fund managers made these deci-

[32] Prominent work includes Shiller (1989), Shafir, Diamond and Tversky (1997), Blinder (2000) and Howitt's (2002) survey on labor market research.

sions about their international allocation without any restriction. Moreover, further findings in the literature can be confirmed with our different type of data. Home bias is related to proximity, perceived informational advantage and expected higher returns. What is new is the finding that all of these relations occur simultaneously. This makes it difficult to discriminate between different hypotheses.

An extension of these relations into the areas of institutional, informational and behavioral characteristics shows that further factors – not discussed in earlier studies – are related to home bias as well. Home bias is an attribute that is related to lower fund volumes, to a more intensive reliance on non-fundamental analysis and to some behavioral distortions of decision-making. Multivariate analyses indicate that home bias is related to items of the earlier literature as well as to the newly analyzed characteristics. Reflecting on the exogeneity of variables, the driving forces appear to be characteristic of less than fully rational behavior.

The paper is structured into five more sections. Section 6.2 describes data. Section 6.3 analyzes literature hypotheses with our different type of (survey) data, whereas in Section 6.4 new hypotheses are tested. Multivariate regressions are presented in Section 6.5 and, finally, Section 6.6 concludes.

6.2 Data

This questionnaire survey study accounts for the responses of 234 fund managers in Germany. Between April and June 2003, all mutual and pension fund management companies that manage securities portfolios were addressed (but not those managing real estate). We received a supporting letter from the respective German investment association "BVI", which encouraged member companies to participate. 51 out of 66 companies responded, yielding a rate of 77.3%. Due to numerous and repeated contact attempts with each company and the partial use of email-copies, we cannot give a response rate for persons asked to participate. However, absolute participation and the response rate of fund management companies can be compared with earlier surveys of a similar kind, indicating a favorable response.[33]

[33] For US foreign exchange dealers Cheung and Chinn (2001) realize 108 responses and a personal response rate of about 8%. Arnswald (2001) has 275 individual responses and a participation of 60 German equity management companies (by way of the authority of the Deutsche Bundesbank). Gehrig and Menkhoff (2004) report a response from 29 fund management companies, representing 51%, for the more narrow field of foreign exchange management.

Many interviews with fund managers from various investment companies and in several cities were conducted in advance in order to ensure that questions as well as response categories were clearly understandable and relevant. A test run of the questionnaire was performed as well.

A bottleneck for survey studies is the limited time of professionals and their comparatively low incentive to answer questions in a careful manner. As an indication of the usefulness of our data, we thus show the current position of respondents within their companies in *Table 6-1*. It is obvious that the hierarchy in these firms is reflected in responses. It is of particular significance that the answers were not primarily given by less experienced and less influential junior asset managers. Moreover, the data on age, experience and working hours that is also shown in Table 6-1, indicates in an exemplary manner that the data seems to be consistent in its structure.

Table 6-1
Respondents' current position within own company

	Responses		Age[1)]	Experience[1)]	Working hours[1)]
CIO / CEO	10	4.4%	~ 41 years	~ 13 years	~ 51 hours
Head of AM team	38	16.6%	~ 36 years	~ 8 years	~ 49 hours
Senior asset manager	109	47.6%	~ 35 years	~ 7 years	~ 46 hours
Junior asset manager	72	31.4%	< 31 years	< 4 years	~ 46 hours
Total	229		~ 33 years	~ 6 years	~ 47 hours

This table is based on 224-229 responses, depending on the answers to each question.
[1)]Approximate figures arise from the calculation of the mean answers given to the respective response categories that comprehend ranges of age, experience or working hours.

6.3 Survey findings on literature hypotheses

6.3.1 The existence of home bias

The determination of a home bias is usually based on the ex post analysis of (international) securities holdings. One possible way is to analyze foreign equity held by domestic residents. Another way, for example, analyzes the share of foreign securities in the portfolios of institutional investors (Lewis, 1999). These procedures involve an identification problem, as it is not entirely clear who is really responsible for the observed home bias. In particular, it seems plausible to assume that less informed private investors are more prone to a

home bias than professional investors (see Grinblatt and Keloharju, 2001). The influence of private investors may stretch into the domain of institutional investors, as the former either puts restrictions on asset management or invests more heavily in domestically oriented funds. In any case, earlier research has hardly identified an undistorted home bias among professional asset managers.

This survey study thus adds to available evidence by asking fund managers directly and under the condition that their fund restrictions don't influence their preferred international asset allocation. The response from German fund managers is very clear in its qualitative direction: the vast majority would invest a larger share of the hypothetical investment in Germany than would be suggested by Germany's share in world markets alone. *Figure 6-1* shows the distribution of the preferred share of investments in Germany: 29% allocate up to 5% of the investment for the German market. As respondents mostly answer at full 5-percentage numbers, there is hardly any response in between 5% and 10%. This implies that 71% prefer a weight for the German market of approximately 10% and more. This contrasts with the market capitalization of Germany, which was about 3% for stock markets and 7.5% for bond markets, respectively, during the first half of 2003.[34] Due to this difference, it seems plausible that bond managers allocate even as much as 15.5% for the German market and thus more than the 11.8% of equity managers. In sum, 71% of the responding German fund managers would overweigh Germany in their preferred portfolio. Germany is over-represented in these portfolios by a factor of about three.[35] This indicates a very clear home bias for professional fund managers – even without any restrictions from their customers.[36]

In another analysis, the hypothesis of a "home bias at home" can be tested. Coval and Moskowitz (1999) find that for the US market local proximity enforces home bias. Applying this idea to the European context, one might expect that the European region is preferred to other regions in the world by those who show a home bias. This effect – which can also be recognized for the UK in French and Poterba (1991, Table 2) and for Canadian investments from the US (Tesar and Werner, 1995) – shows up in the survey data as well. Although the

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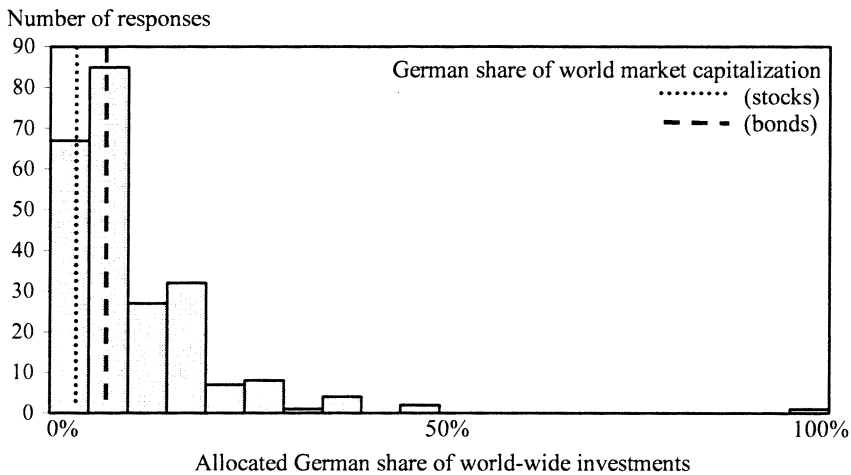
[34] The German stock market share is taken from Morgan Stanley's MSCI All Countries-index. The bond market share is calculated by referring to the Bank for International Settlements' (2003, Tables 12A, 16A) statistics on domestic and international debt securities markets.

[35] The overrepresentation of Germany ranges between a factor of two for the response from bond managers compared to the German share in world bond markets and a factor of four for the response from equity managers compared to the German share in world equity markets.

[36] According to Lewis (1999, Table 2), institutional investors from Germany are more internationally oriented than from many other countries as their percentage holdings of foreign securities are higher.

home bias for Germany implies a higher share for this market and thus enforces overall lower shares for the remaining markets, the preference for Germany goes hand in hand with a preference for Europe. The detailed regional investment allocation can be inferred from *Figure 6-2*. In addition, a rank correlation of regional investment shares confirms the finding, as the positive and statistically significant correlation between German and European investments is contrasted by the negative correlation between Germany and the US or Asia respectively.

Request: "Please allocate the investment of €10 mill. in a way to the following regions that the shares add up to 100% (leave the restrictions of your funds unconsidered): _ Germany, _ Europe (ex Germany), _ USA and Canada, _ Asia, _ Emerging Markets."



This figure is based on 234 responses. The intervals are given for a width of five percentage points. The German shares of world market capitalization of 3% for stocks and 7.5% for bonds are taken from Morgan Stanley's MSCI and the Bank for International Settlement (2003) respectively.

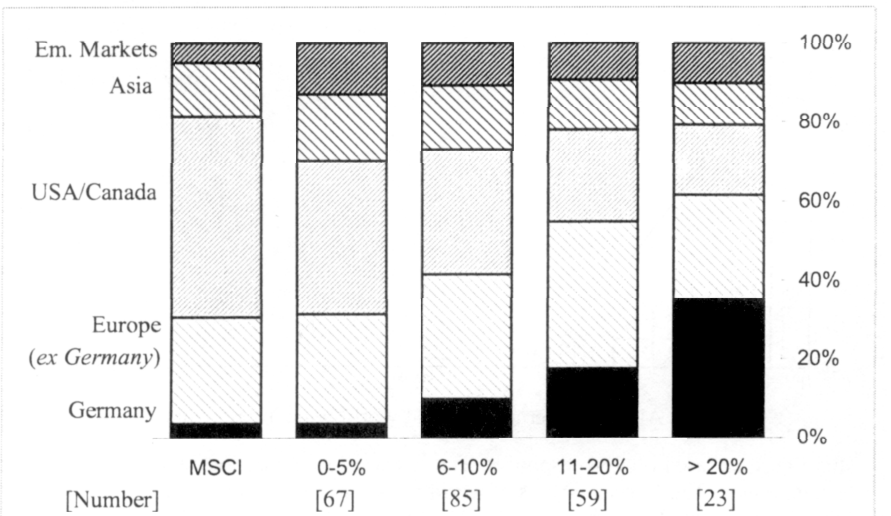
Figure 6-1: Home bias of German fund managers

In summary, home bias very clearly exists with regard to coverage (71%), amount (12-16% allocation vs. 3-8% world market share) and structure (home bias at home), even among professional asset managers.

6.3.2 Suggested relations of home bias

There have been two major contributions towards an explanation of the home bias puzzle that have found substantial empirical support. The first ap-

proach being advanced to explain home bias is the hypothesis of "informational advantage". Gehrig (1993) shows that the existence of systematically better-informed local investors would lead to a capital market equilibrium with over-weighing of home assets. Kang and Stulz (1997) find that for the case of Japan, foreign investors indeed prefer those stocks about which they have better information due to a better international presence of firms (see also Ahearne et al., 2002). Coval and Moskowitz (1999) demonstrate that for the US, investors prefer stocks with local proximity (see also Huberman, 2001). So far, the literature is compatible with the view that investors prefer assets about which they feel to be better informed. Unclear, however, is whether they are really better informed. In a follow-up paper, Coval and Moskowitz (2001) find that home bias in their US sample is indeed accompanied by higher returns, indicating that local information can be valuable.



Data underlying this figure are described in Figure 6-1.

Figure 6-2: Preferred international asset allocation depending on the allocated German share

The second hypothesis, that of "relative optimism", was advanced by Shiller et al. (1996). It claims that local investors regard the fundamental situation in their home country as being relatively better than investors from abroad would. This does not imply that local investors give their home country an absolute advantage – even a relative advantage justifies a portfolio allocation that over-

weighs the home market. What Shiller et al. measured in the US and Japan for the first time has been extended by Strong and Xu (2003) to a broader sample. Thus, "relative optimism" can now be regarded as a stylized fact helping to understand home bias.

Our survey allows the testing of this latter hypothesis in a new way. Due to the focus on individual data, the issue is not one of optimism relative to foreign investors, but one of the relative optimism of those fund managers revealing home bias. In addition, the data allows us to distinguish the responses of equity and bond managers.

With the survey data available here, it can be tested whether these two hypotheses on home bias receive support. Regarding the hypothesis of "informational advantage", it has been asked whether fund managers see a local advantage at work (see *Table 6-2*.A). The answers fully support the hypothesis. The stronger the home bias, the more fund managers believe in an informational advantage. This relation is even closer for the group of equity managers only, whereas the coefficient for bond managers is much smaller and insignificant. It seems obvious that fund managers, in particular equity managers, believe in their own advantage, which encourages the exploitation of this advantage by heavily investing in the home market. Concerning possible implications, the expected one-month ahead 90% intervals for two stock market indices were questioned. If investors with home bias truly had better information, one might expect that they are able to better predict future prices. However, the relation between a correct EuroStoxx 50 forecast (coming closest to a local market, as the European market is also overweighed) and German investment is statistically insignificant for equity and bond managers (see *Annex 6-1*).[37] So our data does not reveal a clear informational advantage.

Regarding "relative optimism", the ten-year stock return expectations for the major markets in the world were inquired about. Table 6-2.B shows that the preference for home assets is positively related to a relatively better expectation for the German market. This relative optimism is statistically highly significant in comparison with the rest of Europe and the USA. Regarding subgroups within the market, the finding is particularly strong for equity managers, but does not hold for bond managers. The response of bond managers does not change either if we relate their degree of home bias to the expected bond market return (shown in Table 6-2.B).

In summary, our survey data of fund managers complements earlier approaches. It confirms the findings of perceived informational advantages and relative optimism for equity managers, although not for bond managers. What

[37] While this analysis refers to forecast accuracy, i.e. the first moment, Section 6.4.3 addresses expected future price ranges, i.e. the second moment, with similar results.

may be surprising, moreover, is the fact that both effects co-exist simultaneously. This raises the question of which effect may be stronger and whether even other unexplored factors may be important in understanding the home bias phenomenon.

Table 6-2
Findings on the hypotheses of information advantage and relative optimism

A. Statement: "As a domestic asset manager I benefit from better information on domestic securities compared to market players abroad." Six response categories from 1 (complete disagreement) to 6 (complete agreement).

B. "Which long-term market expectations do you have for the next 10 years?" Equity managers / bond managers: "Average stock / bond market yield p.a. in local currency: __ Germany, __ Europe, __ USA, __ Asia."

	Spearman rank correlation coefficients with German investment share (p-value in parentheses)		
	All managers	Equity managers	Bond managers
A. Domestic managers better informed	0.171*** (0.009)	0.226*** (0.006)	0.063 (0.670)
B. Yield GER – EU	0.210*** (0.003)	0.211** (0.014)	0.032 (0.853)
Yield GER – USA	0.195*** (0.005)	0.243*** (0.004)	-0.080 (0.650)
Yield GER – Asia	0.082 (0.260)	0.128 (0.145)	-0.085 (0.668)

Stars refer to level of significance: *10%, **5%, ***1%.

6.4 Survey findings on further relations

The broad coverage of the survey provides the opportunity to test further relations that go beyond earlier literature. We group these new items into three categories: the first one is mainly institution oriented, whereas the two others resemble the above tested hypotheses of "informational advantage" and "relative optimism", i.e. they are information and behavior oriented.

6.4.1 Relations of home bias with institutional characteristics

Starting with institutional characteristics that might accompany home bias, there is no theory needed for an exploratory approach, but the working hypothesis is rather straight forward: viewing home bias from the perspective of functioning markets, the fact of a clear home preference would be related with

signs of (possible) inferiority in several dimensions. In this sense, home bias may be practiced by fund managers that are younger and less experienced, work less, reach lower positions, have less education, receive lower bonus payments or other incentives and are given fewer asset volumes to manage.

Relating the degree of German investment share (taken as our measure of home bias) with these items provides a clear result: fund managers showing home bias are most often quite "normal" with regard to their institutional characteristics. In particular, they are neither less experienced nor less successful regarding their positional level. There is one highly significant difference, however: home biased equity managers account for a lower volume (see *Table 6-3*.A). Nevertheless, this is the only consistently significant finding, whereas other indications of inferiority are of more fragile nature. So, working hours and education level tend to be less for equity managers showing home bias, a finding which is sometimes significant depending on sample size (see Table 6-3.B and C). In summary, home bias is not significantly related with institutional characteristics in general. The group of equity managers, however, shows some tendency towards indicators of inferiority, whereas there is no such relation for bond managers.

Table 6-3
Findings on the relation of home bias with institutional characteristics

A. "Your personal responsibility for assets under management (in € mill.):" six categories from "<50" up to ">10,000".

B. "Average working hours per week:" six categories from "<41" up to ">60".

C. "Educational level: __ non-academic degree, __ academic degree".

	Investment segment	Spearman rank correlation coefficients with German investment share (p-value in parentheses, number of respondents in brackets) full sample			share >0, ≤50		
A.	Stocks	-0.225***	(0.008)	[n=137]	-0.233***	(0.008)	[n=129]
	Bonds	0.049	(0.747)	[n=45]	-0.115	(0.478)	[n=40]
B.	Stocks	-0.127	(0.124)	[n=147]	-0.145*	(0.089)	[n=138]
	Bonds	0.196	(0.182)	[n=48]	0.133	(0.395)	[n=43]
C.	Stocks	-0.132	(0.111)	[n=147]	-0.146*	(0.088)	[n=138]
	Bonds	0.228	(0.131)	[n=45]	-0.035	(0.827)	[n=41]

There are no robust relations of home bias with: gender, marital status, age, professional experience, average period of data procurement and research, current position within company, average bonus received, mutual fund or special fund (such as pension fund) and four different criteria of performance-based remuneration. Stars refer to level of significance: *10%, **5%, ***1%.

6.4.2 Relations of home bias with informational characteristics

The hypothesis of "informational advantage", discussed in Section 6.3.2, assumes that local investors would have a valuable information advantage. German fund managers who prefer investments in Germany tend to agree with this view more than others. So, what characterizes their behavior towards information? The above assessed relations with institutional characteristics have already shown that home bias is not related to either higher or lower effort in information gathering. Moreover, company size, proxying the degree of private information due to enhanced research facilities, tends to be smaller for home biased equity fund managers, though this relation is not robust. Thus, home bias does not seem to be related to the *amount* and *general quality* of information. In a next step, the *type* of information is analyzed.

In the survey question on this subject, fund managers were asked to assess the importance of six different sources of information for their decision making. If home bias were based on better information on local markets these respondents should use fundamental information at least as intensively as the average market participant. The findings reveal, however, that this is clearly not the case. *Table 6-4*.A shows the responses concerning preferred sources of information for equity managers; bond managers do not show any significant relations. Home bias is positively related to the higher relevance of all kinds of information, but with one exception – fundamental facts. Moreover, home bias is even positively associated with alternative sources of information. There is a statistically significant relation with chart analysis / technical indicators and with statements of economic opinion leaders. These are sources of information that have been classified as non-fundamental, for example by Shleifer and Summers (1990).

In order to check the robustness of this finding, Table 6-4.B gives the responses to the phrase "to follow the herd". This phrase seems to describe the application of mostly trend-following technical analysis. Indeed, it is given much credence by equity managers with a German preference, although not at all by bond managers. Thus, the response pattern on information sources is consistent with the responses regarding trend following behavior. It reveals that the informational acquaintance of home bias is not a particular interest in fundamental analysis that might cause an informational advantage, but rather in non-fundamental analysis. This poses a severe problem for the hypothesis of informational advantage: charts and statements of prominent opinion leaders rely on information that is common knowledge and thus not new. Moreover, this type of information does not possess an obvious local advantage.

The direct evidence gained here for fund managers is thus compatible with Huberman's (2001, p.676) inference about household investments that "the [home] bias favoring the familiar does not reflect the exploitation of informa-

tional advantage". Thus emerges the possibility that a particular behavioral pattern might be responsible for home bias.

Table 6-4
Findings on the relation of home bias with informational characteristics for equity managers

A. "Please assess the following sources of information used in making investment decision." Six response categories from 1 (no relevance) to 6 (highest relevance) for the items listed below.

B. Statement: "I generally follow the trend." Six response categories from 1 (complete disagreement) to 6 (complete agreement).

		Spearman rank correlation coefficients with German investment share (p-value)		
A.	Fundamental facts about the company / market	-0.062	(0.452)	[n=148]
	Chart analysis / technical indicators	0.142*	(0.085)	[n=148]
	Discussions / exchange of views with colleagues	0.062	(0.458)	[n=147]
	Investment decisions of other market players	0.068	(0.411)	[n=148]
	Statements of opinion leaders within the industry (e.g. Warren Buffett)	0.107	(0.196)	[n=148]
	Statements of economic opinion leaders (e.g. Alan Greenspan, Wim Duisenberg)	0.295***	(0.000)	[n=148]
B.	Following the trend	0.246***	(0.003)	[n=146]

Number of respondents in brackets. Stars refer to level of significance: *10%, **5%, ***1%.

6.4.3 Relations of home bias with behavioral characteristics

Home bias can be seen as a strategy to accept risk from insufficient diversification. The most obvious behavioral characteristic that might accompany home bias would hence be a higher tolerance towards risk taking in investment decisions. The responses show, however, that fund managers preferring German assets are not significantly different from others: they neither accept greater risks in a general lottery environment nor classify themselves as less risk-averse in their investment decisions, although home biased equity managers tend to regard themselves as somewhat less risk-averse (not presented here).

So, if home bias does not seem to be related to any particular risk attitude in general, it could still be related with a misperception of risks in foreign markets. Huberman (2001) and Kilka and Weber (2000) argue in this respect (fol-

lowing Heath and Tversky, 1991) that perceived competence in local stocks might lead to an underestimation of local risks and an overestimation of foreign risks. In this respect, fund managers were asked to give their estimate of the 90 percent interval of future stock price indices. If home bias were related to wider expected intervals for foreign markets, this might explain why this particular group of fund managers hesitates to invest abroad. The finding presented in *Table 6-5*.A is rather surprising, however, as the home bias of equity managers correlates with a significantly smaller estimation of the future price interval in the US stock index Dow Jones. This significantly narrow expected interval is also found for the most popular European stock index EuroStoxx 50, but to a lesser extent. So, the home bias of equity managers is related to a generally low expectation of risk, which may be interpreted as overconfidence (Klayman et al., 1999, Oberlechner and Osler, 2003), whereas there is no significant relation for bond managers (the insignificant coefficients are not presented in Table 6-5). More important, however, is that home bias is hardly motivated by particularly high expected risk abroad. So, we turn to further aspects of risk consideration.

One of the most prominent concepts in this respect is the disposition effect. Inspired by Kahneman and Tversky's (1979) highlighting of loss aversion, Shefrin and Statman (1985) point out the "disposition to sell winners too early and to ride losers too long", in short, the disposition effect. This effect has been proven in many ways, among others by Grinblatt et al. (1995) for mutual fund managers who buy winning stocks but fail to systematically sell losers to the same degree. Odean (1998) shows that private investors lose money by sticking to losing stocks. The lesson from earlier studies is that the disposition effect is a source of relative losses. It is therefore relevant for home bias that the disposition effect is significantly stronger for those equity managers who prefer German investments, although not for bond managers (Table 6-5.B). What might be the motivation behind this finding, and how can it be related to earlier findings?

Shefrin and Statman (1985) discuss a variety of concepts, such as loss aversion and regret avoidance. A positive relation of disposition effect and loss aversion holds for the equity managers in this survey too (not presented), but loss aversion is not significantly related to home bias in a robust way. So, what might cause the disposition effect of this group if it goes beyond general loss aversion? Respondents were requested to respond to a certain scenario in a tournament structure – namely, they were to assume that their own fund was under-performing in relation to the relevant benchmark near the end of the period. Even though the literature is controversial on the theoretically expected reaction to underperformance, there are strong reasons to expect no change in strategy due to a strictly fundamental approach. In fact, however, the home bias

of equity managers was found to correspond with a decrease in the relative risk level (Table 6-5.C). So, there is a preference not to fall short by too much.

Table 6-5
Findings on the relation of home bias with behavioral characteristics for equity managers

A. "Please estimate the development of the EuroStoxx 50 and the Dow Jones within the next month. Please forecast the performance of the respective index with a probability of 90%."

B. "I prefer to take profits instead of cutting losses, when I am confronted with unexpected liquidity demands." Six response categories from 1 (complete disagreement) to 6 (complete agreement).

C. "Apart from any fund's restriction – Imagine your portfolio's performance differs from its benchmark near the end of the period."

Alternative statements: "If my portfolio has underperformed its benchmark so far, I would: ...increase the relative risk level to reach the benchmark, ...decrease the relative risk level to avoid further deficits, ...not change my strategy."

	Spearman rank correlation coefficients with German investment share (p-value)		
A. Width of expected 90% probability			
– for the EuroStoxx 50	-0.164*	(0.059)	[n=134]
– for the Dow Jones	-0.253***	(0.003)	[n=135]
B. Take profits in case of liquidity demand	0.235***	(0.004)	[n=145]
C. Increase relative risk vs. no change	0.123	(0.189)	[n=115]
Decrease relative risk vs. no change	0.166*	(0.054)	[n=135]

Number of respondents in brackets. Stars refer to level of significance: *10%, **5%, ***1%.

It seems intuitive that this latter motivation could be a root cause "to go with the trend" and to rely on "technical analysis". The revealed kind of risk aversion also does not seem to demonstrate strong self-confidence. This might fit to the observed responsibility for lower volumes (Section 6.4.1).

To summarize Section 6.4: there appears to be further sources of home bias for equity managers than those identified in the previous literature. This raises the question: which ones are really important?

6.5 The relative importance of home bias' driving forces

6.5.1 Statistical analyses of driving forces

So far, fund managers' views have revealed five different groups of driving forces that may be responsible for home bias. According to the above presented findings, the preference for home bias is, first, related to a belief in an informational advantage and, second, relative return optimism towards home assets. For equity managers, three further sources of home bias have been analyzed in Section 6.4, i.e. institutional, informational and behavioral motivations. In order to analyze relative importance, it seems useful to reduce the multitude of characteristics mentioned so far. We perform this task for equity managers by following two approaches: first, a stepwise elimination of insignificant determinants in a linear regression is applied, and second, a principal component analysis is run.

Regarding the stepwise regression, the 21 variables covered in the tables above are reduced until there remains a regression with six independent variables that are each significant. The adjusted R-squared of this approach is about 0.25 and thus not too bad, taking the high deviations in survey data into account. Moreover, the remaining variables fit quite well into the discussion of Sections 6.3 and 6.4. In particular, all five groups of variables that have been mentioned are covered by the six variables. Details given for model 1 in *Table 6-6* show that better local information, comparatively better expected German performance, lower fund volumes, reliance on information from economic opinion leaders and estimation of a (too) narrow Dow Jones interval are the most useful variables in this approach. Further restricting the number of variables in models 2 and 3 indicates that local information advantage is less important than other variables.

As another means to reduce information from the universe of 21 variables, principal component analyses are applied. We calibrate them conventionally, first by excluding factors with an eigenvalue of below one and excluding variables that have a loading of less than 0.5 on any component. This procedure yields three components that are quite clearly driven by a few variables each: component one mainly reflects the expected higher returns from investments in Germany in comparison with Europe and the USA. Component two is characterized by information sources. The third component is basically driven by education alone, an institutional characteristic. Exact figures are given in *Annex 6-2*. If we restrict another principal component analysis to a maximum of three components, it is again found that the three components can be traced back first to behavioral characteristics, second to informational characteristics and third to "relative optimism" in returns (see *Annex 6-3* for details).

Table 6-6
Stepwise regressions explaining home bias of equity managers

Variables	Coefficients		
	MODEL 1	MODEL 2	MODEL 3
Domestic managers better informed	1.301**	1.035*	---
Yield GER – USA	1.601***	1.541***	1.556***
Responsibility for asset under management	-0.913**	-0.796**	-0.752*
Source of information:			
– Opinion leaders within the industry	-1.415**	---	---
– Economic opinion leaders	1.803***	1.393**	1.671***
Spread of Dow Jones forecast	-0.217***	-0.203***	-0.164**
Constant	*12.472****	*10.609****	*12.971****
Adjusted R-squared	*0.260*	*0.241*	*0.224*
F-statistic	*7.927****	*8.479****	*9.670****

This table is based on 119 responses as it considers a German investment share between ≥2% and ≤50%. Stars refer to level of significance: *10%, **5%, ***1%.

In summary, the home bias of equity managers appears to be driven by more forces than often previously assumed. In particular, three forces stand out in a quite robust fashion: relative optimism in returns, as identified in earlier studies, but also informational and behavioral factors all play a useful role in improving our understanding of home bias.

6.5.2 A qualitative discussion of driving forces

Despite this finding of a broad set of driving forces, one may speculate about a hierarchy of determinants of home bias which cannot be identified by the multivariate methods applied above. Instead, one can argue about the exogeneity and possible causality of the variables – an exercise that ends up strengthening the behavioral argument. Starting with the informational advantage, there is evidence that the advantage perceived does not hold in reality, as proponents neither invest in fundamental analysis nor perform better in forecasting. Similarly, the better performance of the home market has previously been revealed as wishful thinking. It may therefore be cautiously inferred that the variables "informational advantage" and "relative return optimism" are themselves influenced by psychological forces (see also Shiller et al., 1996, Huberman, 2001, Strong and Xu, 2003).

Coming to the next group of determinants, institutional characteristics, the lower volume of assets under management being related to home bias is proba-

bly a consequence and not a cause. Causality may be attributed to less working hours and lower educational level, although these findings are not robustly significant. So, turning to the next group, what about informational characteristics? Having already argued that findings do not support the notion of home bias being the result of heavy investment into information production, the kind of information preferred seems to be of non-fundamental character. Reflecting on the nature of non-fundamental information, it could also be influenced by the same behavioral forces as home bias, rather than causing the latter. Hence, if there is a truly causal relationship between the identified driving forces and home bias, behavioral aspects will most probably be important, either indirectly as discussed above or directly.

Due to the complexity of driving forces, any judgment on the type of fund managers that prefer home bias must be speculative. It seems plausible, however, that two ingredients are necessary: the core ingredient is a strong and peculiar kind of risk aversion, generating the disposition effect, tournament behavior and motivating towards trend-related information preferences which are of non-fundamental character. Because of their peculiar form of risk aversion, these fund managers may falsely believe that home assets are less risky. This finding is more specific than the general aspect of "familiarity" (Huberman, 2001, see Grinblatt and Keloharju, 2001) The second ingredient, wishful thinking, has more stabilizing character, as it helps to rationalize home bias via perceived informational advantages and expected higher returns (see also Strong and Xu, 2003). Moreover, the institutional characteristics tend in the same direction, in the sense that home bias is tentatively related to inferiority.

Even though these analyses contribute to a consistent picture, the picture holds for equity managers only and thus still leaves a puzzle behind: bond managers allocate a higher share in the home market than equity managers, but their preference is by and large not significantly related to any views or characteristics. This might indicate that international diversification is not a major issue for bond managers and thus mainly left to idiosyncratic influences. Interview evidence indeed reveals an understanding of risk that is not focused on the expected earnings of firms and national markets but is based on the bond ratings and duration of the portfolio held. These ratings are much more homogeneous than earning forecasts, so insecurity is lower and thus the resulting need to diversify. Duration as the second focus of attention is unrelated to international diversification. Nevertheless, this puzzle seems to be worthy of deeper consideration.

6.6 Conclusions

This paper examines the home bias puzzle from a different angle than most other literature. The data used is the result of a questionnaire survey performed in 2003 whereby 234 German equity and bond managers responded. This basis allows for results that are new in several respects: first, the survey directly asks for the preferred international allocation of fund managers and thus circumvents the identification problem when inferences are drawn from asset holdings. Second, the focus is exclusively on the sophisticated fund managers, so that any findings could not be justified by limited knowledge or marginal market importance. Third, the puzzle is analyzed separately for equity and bond managers.

We find that fund managers reveal home bias even in a setting without investment restrictions. Their beliefs motivate a preference for local assets, which is in line with hypotheses in previous literature. Equity managers trust in an informational advantage and expect higher returns. But informational advantage often appears to be little more than a perceived advantage, as fund managers with a home preference do not forecast stock indices better and rely less than others on fundamental analysis. Moreover, "higher expected returns" have been unmasked in an earlier multi-period study as permanent "relative optimism".

In a more extensive exploration of home bias' driving forces that have so far been discussed, the survey approach allows to the further analysis of relations of interest. Their common theme is to examine characteristics of inferiority, information used and attitudes of risk aversion. It was indeed found that equity managers have a tendency towards indicators of inferiority, that they rely on non-fundamental sources of information and that they reveal tentative underestimation of true risks as well as strong aspects of risk aversion.

It may be plausible to identify two roots of this behavior, i.e. strong risk aversion and wishful thinking: home biased equity managers are tentatively afraid to realize relative losses as indicated by the disposition effect and their very risk-averse tournament behavior. They consequently seem to rely more than others on analytical instruments that make them behave in accordance with the herd, which again insures against negative deviation from the benchmark. Their reliance on home assets could fit into this picture, as it may reveal a false perception of risk reduction. Wishful thinking, mentioned by Strong and Xu (2003) in their discussion of relative optimism, could also help to explain the perceived informational advantage.

In summary, the survey approach is used to reach beyond earlier insights. Evidence suggests that the underlying theme of previous hypotheses, as well as of new hypotheses examined here, is one of less than fully rational behavior. When categorizing responding fund managers, this applies to equity managers only but not to bond managers.

Annex 6-1

Additional findings on the hypothesis of information advantage

Request: "Please estimate the development of the EuroStoxx 50 and the Dow Jones within the next month. Please forecast the performance of the respective index with a probability of 90%."

	Spearman rank correlation coefficients with German investment share (p-value in parentheses)		
Correct forecast	All managers	Equity managers	Bond managers
– EuroStoxx 50	-0.021 (0.772)	-0.052 (0.551)	0.138 (0.420)
– Dow Jones	-0.048 (0.507)	-0.133 (0.126)	0.297* (0.083)

Stars refer to level of significance: *10%, **5%, ***1%.

Annex 6-2

Principal component analysis explaining home bias of equity managers by stepwise excluding components and variables

Variables	Eigenvalues of variables in components					
	Model 1			Model 2		Model 3
	C1	C2	C3	C1	C2	C1
Yield GER – EU	0.688	-0.620	0.060	0.835	-0.405	0.923
Yield GER – USA	0.729	-0.599	-0.011	0.885	-0.320	0.923
Source of information:						
– Other market players	0.677	0.479	0.245	0.521	0.720	---
– Opinion leaders within the industry	0.483	0.661	0.269	0.294	0.839	---
Educational level	0.051	0.230	0.906	---	---	---
Disposition effect	0.617	0.336	0.350	---	---	---

This table is based on 119 responses as it considers a German investment share between ≥2% and ≤50%.

Annex 6-3

Principal component analysis explaining home bias of equity managers by limiting the number of components

Variables	Eigenvalues of variables in		
	Component 1	Component 2	Component 3
Volume of assets under management	0.548	---	---
Disposition effect	0.651	---	---
Spread of EuroStoxx 50 forecast	0.618	---	---
Spread of Dow Jones forecast	0.671	---	---
Domestic managers better informed	---	0.679	---
Source of information:			
– Discussions with colleagues	---	0.551	---
– Opinion leaders of the industry	---	0.546	---
– Economic opinion leaders	---	0.553	---
Yield GER – EU	---	---	0.803
Yield GER – USA	---	---	0.831
Yield GER – Asia	---	---	0.538
Explained variance	14.999%	11.923%	9.593%
Cumulated explained variance	14.999%	26.922%	36.515%

This table is based on 119 responses as it considers a German investment share between ≥2% and ≤50%.

Summary

The dissertation begins with an introduction in Chapter 1. It illustrates the significance of the research topic and arouses the interest of the reader in the set questions as well as presenting the literature which is relevant at present. In addition to this, the questionnaire, which has been sent out to the United States, Germany and to Switzerland for the purposes of collecting information, is presented in detail.

Chapter 2 begins with a general summary of how 263 fund managers in Germany think and act. The structure of this section is determined by the main components of the investment process, that is the influence of incentives, the choice of sources of information and processing information as well as reaching a decision. It shows that these professional market players perceive fund managers to have a herd mentality as well as the substantial psychological impact on pricing. In contrast to this, they chiefly refer to fundamental sources of information, but importance is also attributed to discussions with colleagues as well as to technical analysis. In comparison with other market players, their investment behavior is apparently distorted to a lesser extent by the so-called regulation effect. The following points for discussion can be identified: (i) Herd behavior, which also indicates restraint, (ii) considerable attention is paid to non-fundamental information, (iii) the application of different investment strategies, the preconditions for the success of which do not always exist and (iv) home bias in asset allocation, which is hardly attributable to existing information advantages.

Chapter 3 deals in detail with the first named point of discussion and differentiates between fund managers who follow the herd on the one hand and those who don't on the other hand. Whereas the former are happy to be as good as their fellow fund managers, the latter endeavor to be better than them. Based on the survey in Germany, the chapter provides indications for reputation-based herd behavior and discusses the commitment to work, the preferred sources of information and the investment horizon of fund managers who follow the herd. In addition to which, their risk profile including investment behavior in short-term tournament scenarios is analyzed. It appears that fund managers who follow the herd basically regard themselves as being more averse to taking risks than those who do not follow the herd, but in a tournament scenario the former tend to be prepared to take bigger risks. This result can be ascribed to the fear of being left behind.

Substantial herd behavior by an influential group of market players can cause price movements in the same direction over a certain period of time, so that a so-called price momentum is created. In Chapter 4 various points for developing explanations of share price momentum are discussed. Even if the widely and generally accepted 3 factor model by Fama and French does not provide any explanations for this phenomenon, it does, for example, have some new approaches which may be able to explain share price momentum; in particular the theoretical approaches with regard to behavior as well as the extended risk factor models reconcilable with traditional theory do provide credible explanations which can be understood. Fund managers are often inclined to pursue momentum strategies in order to benefit from these movements in price, since the profitability of these strategies and the periods of time over which manager performance is assessed normally coincide from a chronological perspective.

Based on the complete data set provided by the written questionnaire in the United States and in mainland Europe, that is in Germany and in Switzerland, to be more precise, the influence of incentives on investment behavior is discussed in greater detail in Chapter 5. In a transatlantic comparison it can be seen that explicit incentives in the USA are of much greater importance. Bonus payments do indeed stimulate commitment to work, but there is no significant correlation between performance-based remuneration and risk profile over the longer term. Nevertheless, US fund managers tend to be more prepared to make full use of their freedom to take risks with regard to possible tracking errors, whereas in most cases continental European managers adopt a more passive strategy. In addition to this, research results indicate that bonus payments reduce the willingness to change behavior.

Finally, the survey of fund managers in Germany reveals that in a scenario without restrictions, these professional investors are also inclined to weight their asset allocation in favor of Germany. This phenomenon is analyzed in detail in Chapter 6. Fund managers in Germany favor investment in Germany because they feel that they are close to the market and therefore have the benefit of more up-to-date information and consequently expect higher profits. In addition to this, this so-called home bias is also tied up with institutional, informal and behavior-theory features of share-fund managers. In practice however, the perceived advantage of having better information more quickly does not turn out to be true. Instead, multi-variant analyses disclose that the home bias is chiefly triggered off by relative profit-optimism, the use of non-fundamental information and peculiar risk patterns. These features may be described as incomplete rational behavior. Interestingly, these results can only be proved to be significant in the investment behavior of share fund managers, but not in the behavior of pension fund managers.

Résumé

La dissertation commence par une introduction au chapitre 1 qui explique la signification du sujet de recherche, qui motive les lecteurs à poser des questions et qui présente l'état actuel de la littérature pertinente. De plus, le questionnaire utilisé aux Etats-Unis, en Allemagne et en Suisse pour la saisie des données est décrit en détail.

Le chapitre 2 commence par une vue d'ensemble générale de la pensée et l'action de 263 managers de fonds en Allemagne. La structure de ce paragraphe est basée sur les composants principaux du processus d'investissement, donc sur l'influence d'incentives, la sélection de sources d'informations et le traitement des informations ainsi que sur la prise de décisions. Il s'avère que ces participants professionnels du marché manifestent un esprit grégaire chez les managers de fonds ainsi que des influences psychologiques sur la formation des prix. Contrairement à cela, ils utilisent de préférence des sources d'information fondamentales, mais les discussions avec les collègues et l'analyse technique revêtent également de l'importance. En comparaison avec d'autres participants du marché, le comportement d'investissement est apparemment moins déformé par l'effet dit de disposition. Les points de discussion suivants peuvent être identifiés : (i) esprit grégaire qui reflète aussi des réserves, (ii) prise en compte considérable d'informations non fondamentales, (iii) application de différentes stratégies d'investissement dont les conditions du succès ne sont pas toujours données et (iv) une déformation de la patrie dans „Asset Allocation" qui ne provient guère d'avantages d'information existants.

Le chapitre 3 se consacre en détail au premier de discussion mentionné et fait une différence entre les managers de fonds à orientation grégaire d'une part et les managers de fonds à orientation non grégaire d'autre part. Alors que le premier groupe se contente d'être aussi bon que les compagnons, ces derniers s'efforcent d'être mieux en comparaison. Sur la base de l'enquête en Allemagne, le chapitre fournit des informations sur le comportement grégaire basé sur la réputation et discute le management de travail, les sources d'informations préférées et l'horizon d'investissement de managers de fonds à orientation grégaire. De plus, leur comportement quant aux risques, y compris le comportement d'investissement, est analysé pour ces scénarios à court terme. Il s'est avéré que les managers de fonds à orientation grégaire courent fondamentalement moins de risques que les managers à orientation non grégaire, mais, dans le scénario de tournoi, le premier groupe est prêt à courir des risques plus élevés. Ce résultat provient de la peur de sortir du „troupeau".

Le comportement grégaire abondant d'un groupe de participants de marché ayant une grande influence peut donner lieu à des mouvements de prix semblables pour une certaine période de sorte qu'une situation de prix momentanée se forme. Le chapitre 4 discute différentes approches d'explication de la situation momentanée observée des cours des actions. Alors que le modèle de 3 facteurs vaste et généralement reconnu de Fama et French ne peut pas expliquer ce phénomène, il existe quelques nouvelles approches qui peuvent expliquer la situation momentanée des cours des actions : ce sont surtout les approches théoriques concernant le comportement ainsi que les modèles étendus des facteurs de risques compatibles avec la théorie traditionnelle qui permettent d'obtenir des explications concevables. Les managers de fonds ont souvent tendance à se reporter aux stratégies momentanées afin de profiter des mouvements de prix étant donné que la profitabilité de ces stratégies et les périodes de l'évaluation des performances des managers coïncident typiquement du point de vue temps.

Sur la base de toutes les données de l'enquête écrite dans les Etats Unis et l'Europe continentale, c'est-à-dire en Allemagne et en Suisse, le chapitre 5 est consacré à l'influence d'incentives sur le comportement d'investissement. La comparaison transatlantique montre que les stimulants explicites ont une signification beaucoup plus élevée aux Etats-Unis. Le paiement de bonus stimule certes l'engagement, mais il n'y pas de relation significative disant que la rémunération orientée vers les performances exerce une influence de longue durée sur le comportement de risques. Malgré cela, les managers de fonds américain sont plus prêt à utiliser leur marge de risque quant aux Tracking Errors possible, alors que les managers en Europe continentale utilisent souvent une stratégie plus passive. En outre, les résultats de l'enquête indiquent que le paiement de bonus réduisent la disposition au comportement conformiste.

Finalement, l'enquête réalisée chez les managers de fonds en Allemagne montre que ces investisseurs professionnels ont tendance à déformer la patrie dans leur Asset Allocation (dans un scénario sans restrictions). Ce phénomène est analysé de manière exhaustive au chapitre 6. La proximité du marché, les avantages d'information sentis et des profits plus élevés attendus pour le marché nationales vont de pair avec cette déformation de la patrie. De plus, ce „Home Bias" est aussi lié à des caractéristiques institutionnelles, informelles et théoriques quant au comportement de managers de fonds d'actions. L'avantage d'information perçu ne semble toutefois correspondre à la vérité dans la pratique. Au contraire, les analyses multivariées révèlent que la déformation de la patrie est déclenchée principalement par un optimisme de profit relatif, l'utilisation d'information non fondamentales et un comportement de risque particulier. Ces propriétés peuvent être décrites comme comportement rationnel incomplet. Il est intéressant que ces résultats ne peut être prouvés que pour le comportement des managers d'actions, mais pas des managers de fonds publics.

Zusammenfassung

Die Dissertation beginnt mit einer Einleitung in Kapitel 1, die die Bedeutung des Forschungsthemas verdeutlicht und den Leser für die Fragestellungen motiviert sowie den aktuellen Stand der relevanten Literatur präsentiert. Des Weiteren wird der Fragebogen, der zur Datenerhebung in den Vereinigten Staaten, in Deutschland sowie in der Schweiz verwandt worden ist, detailliert vorgestellt.

Kapitel 2 beginnt mit einem allgemeinen Überblick über das Denken und Handeln von 263 Fondsmanagern in Deutschland. Die Struktur dieses Abschnitts orientiert sich dabei an den Hauptkomponenten des Investmentprozesses, also dem Einfluss von Incentives, der Auswahl von Informationsquellen und der Informationsverarbeitung sowie der Entscheidungsfindung. Es zeigt sich, dass diese professionellen Marktteilnehmer Herdenverhalten bei Fondsmanagern sowie substantielle psychologische Einflüsse auf die Preisbildung wahrnehmen. Im Gegensatz dazu ziehen sie vorrangig fundamentale Informationsquellen heran, aber auch Diskussionen mit Kollegen sowie technischer Analyse wird Bedeutung beigemessen. Im Vergleich zu anderen Marktteilnehmer ist ihr Anlageverhalten scheinbar weniger durch den so genannten Dispositionseffekt verzerrt. Folgende Diskussionspunkte lassen sich identifizieren: (i) Herdenverhalten, das auch Zurückhaltung reflektiert, (ii) erhebliche Beachtung nicht-fundamentaler Informationen, (iii) Anwendung unterschiedlicher Investmentstrategien, deren Erfolgsvorrausetzungen nicht immer gegeben sind und (iv) eine Heimatverzerrung in der Asset Allokation, die kaum auf existierende Informationsvorteile zurückzuführen ist.

Kapitel 3 befasst sich en detail mit dem erstgenannten Diskussionspunkt und differenziert zwischen herdenorientierten Fondsmanagern einerseits und nicht-herdenorientierten Fondsmanagern andererseits. Während sich erstere damit begnügen, so gut zu sein wie ihre Mitstreiter, sind letztere bemüht, vergleichsweise besser zu sein. Basierend auf der Befragung in Deutschland liefert das Kapitel Hinweise für reputationsbasiertes Herdenverhalten und diskutiert das Arbeitsengagement, die bevorzugten Informationsquellen und den Anlagehorizont von herdenorientierten Fondsmanagern. Zudem wird deren Risikoverhalten inklusive des Anlageverhaltens in kurzfristigen Turnierszenarien analysiert. Es zeigt sich, dass sich herden-orientierte Fondsmanager grundsätzlich als risikoaverser einschätzen als nicht-herdenorientierte, aber im Turnierszenario sind erstere eher bereit, höhere Risiken einzugehen. Dieses Ergebnis ist der Furcht, aus der Herde heraus zufallen, zuzuordnen.

Ausgiebiges Herdenverhalten einer einflussreichen Gruppe von Marktteilnehmern kann gleichgerichtete Preisbewegungen für einen gewissen Zeitraum verursachen, so dass ein so genanntes Preismomentum entsteht. In Kapitel 4 werden verschiedene Erklärungsansätze für beobachtetes Aktienkursmomentum diskutiert. Selbst wenn das weitreichende und allgemein anerkannte 3-Faktoren Modell von Fama und French keine Erklärungskraft für dieses Phänomen besitzt, so existieren einige neue Ansätze, die das Aktienkursmomentum erklären können: insbesondere liefern die verhaltenstheoretischen Ansätze sowie die erweiterten Risikofaktorenmodelle, die mit der traditionellen Theorie vereinbar sind, nachvollziehbare Erklärungen. Fondsmanager sind oftmals geneigt, Momentum Strategien zu verfolgen, um von diesen Preisbewegungen zu profitieren, da die Profitabilität dieser Strategien und die Perioden der Leistungsbeurteilung der Manager typischerweise zeitlich zusammenfallen.

Basierend auf dem gesamten Datensatz der schriftlichen Befragung in den Vereinigten Staaten und Kontinentaleuropa, genauer gesagt in Deutschland und in der Schweiz, wird in Kapitel 5 der Einfluss von Incentives auf das Investmentverhalten näher beleuchtet. Im transatlantischen Vergleich zeigt sich, dass explizite Anreize in den USA deutlich höhere Bedeutung haben. Bonuszahlungen stimulieren zwar den Arbeitseinsatz, doch es ergibt sich kein signifikanter Zusammenhang, dass leistungsorientierte Vergütung das Risikoverhalten nachhaltig beeinflusst. Dennoch sind US Fondsmanager eher bereit, ihren Risikospielraum hinsichtlich des möglichen Tracking Errors auszunutzen, während kontinentaleuropäische Manager zumeist eine passivere Strategie verfolgen. Darüber hinaus weisen die Untersuchungsergebnisse darauf hin, dass Bonuszahlungen die Bereitschaft zu angepasstem Verhalten verringern.

Schließlich offenbart die Befragung der Fondsmanager in Deutschland, dass auch diese professionellen Investoren zu einer Heimatverzerrung in ihrer Asset Allokation (in einen Szenario ohne jegliche Restriktionen) neigen. Dieses Phänomen, wird in Kapitel 6 ausführlich analysiert. Marktnähe, gefühlte Informationsvorteile und höhere erwartete Rendite für den heimischen Markt gehen mit dieser Heimatverzerrung einher. Zusätzlich ist dieser so genannte Home Bias aber auch mit institutionellen, informellen und verhaltenstheoretischen Charakteristika von Aktienfondsmanagern verbunden. Der wahrgenommene Informationsvorteil scheint sich in der Praxis jedoch nicht zu bewahrheiten. Vielmehr offenbaren multivariate Analysen, dass die Heimatverzerrung hauptsächlich durch relativen Renditeoptimismus, die Nutzung nicht-fundamentaler Informationen und eigentümliches Risikoverhalten ausgelöst wird. Diese Eigenschaften können als unvollständig rationales Verhalten beschrieben werden. Interessanterweise sind diese Ergebnisse nur im Anlageverhalten von Aktienfondsmanagern signifikant nachweisbar, aber nicht bei Rentenfondsmanagern.

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